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ARACHNODACTYLY OR MARFAN'S SYNDROME

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THIS paper is written as a tribute to the late Dr. F. C. Crossle, whose patient (M.F.) forms the main subject of the present study and was examined in consultation by two of us (C.G.L. and K.E.S.). We are indebted to Dr. Crossle's widow for permission to use his case records. It was Dr. Crossle's intention to publish the case himself, and in view of his lucid and graphic style, it is the more regrettable that he was unable to do so. In his notes on his patient he remarks:

A rare disease is always of interest. It enlivens the detecting instinct of the physician and raises the hopes of the surgeon. For this reason one may be pardoned for offering the details of a rare disease for clinical presentation. I had an uneasy and guilty feeling that I should have recognized her at a glance, but could not approximate (her) to any type I had ever seen. There she was, a lean and slender glances, with wide open eyes and startled look, as if in a continual apology for appearing publicly in such a guise.

HISTORICAL SURVEY.

In 1896 Marfan encountered, in a child, aged five and a half years, an anomaly characterized by abnormal elongation and attenuation of the extremities. To this condition he gave the name *dolichosténomélie*. Although he refers to the spider-like fingers and toes (*pattes d'araignée*), the term arachnodactyly was coined, not by him, but by Achard (1902), who, in reporting a similar case, again drew attention to this striking feature. It is evident, however, not only from Marfan's account, but from the reports of subsequent observers, that the condition of the

fingers and toes represents only one component of a more complex syndrome. Besides the shape of the extremities, Marfan noted the deficiency of subcutaneous fat, the poor development of the muscles, the presence of contractures of the fingers, elbows and knees, asymmetry of the face and skull, and a spur on the *os calcis*. Méry and Babonneix (1902), who gave a further report on Marfan's patient, state that six years later the child was still unable to walk and had developed kyphoscoliosis; the patella was found to occupy an abnormally high position and there was hyperextensibility of some of the small joints. Owing to the unusual development of the epiphyseal cartilages (quoted from Rados, 1942), they regarded the condition as the opposite of achondroplasia and named it hyperchondroplasia—a concept which will be discussed later. In 1912 Salle reported for the first time what are now regarded as features only second in importance to the shape of the extremities—namely, the occurrence of ocular signs and of a cardiac anomaly. The patient was an infant who in life exhibited small pupils and shallow anterior chambers, together with cyanosis and dyspnoea; post-mortem examination, carried out when the child was aged two and a half months, revealed the presence of a patent *foramen ovale*, while the ears appeared to be abnormally large and the intestines unusually long.

In 1912 Dubois noted congenital dislocation of the hip and hammer-toe in a patient with arachnodactyly. In 1914 Thomas added webbing of the fingers and deformity of the ears to the list of anomalies found in this condition. In the same year Boerger (1914) described congenital dislocation of the lens—the most frequently encountered of the ocular signs of the syndrome—and he also observed iridodonesis, enlarged cornea, hydrophthalmos, myopia and the presence of remnants of pupillary membrane. However, it was not until the publication of the paper by Ormond and Williams in 1924 that *ectopia lentis* came to be recognized as one of the cardinal signs of the condition. Since then much of the interest in the disease has centred

around the ocular defects. Ormond and Williams themselves collected 16 cases in which such abnormalities were present. Indeed, since 1924 most of the literature on arachnodactyly has been contributed by ophthalmologists and an exhaustive review of the subject up to 1942 by Rados (1942) appeared in the *Archives of Ophthalmology* in that year.

From the time of the publication of Boerger's paper until the present time, further ramifications of this syndrome have been gradually revealed. Among these the following, given in the order in which they were first reported, may be mentioned: abnormal lobulation of the lungs, a highly arched palate, a melancholy facial expression, under-development of the genitalia (Boerger, 1914); pigeon-breast (Thursfield, 1920); cleft palate, deficiency of the lower lids, patent interventricular septum (Piper and Irvine-Jones, 1926); funnel-shaped deformity of the thorax, signs resembling those of Friedreich's ataxia (Schlack, 1926); a double row of teeth in the lower jaw (Bauer, 1927); impaired hearing (Ganther, 1927); exostoses, *spina bifida occulta*, subluxation of various joints, mental retardation (Brock, 1927); congenital aneurysmal dilatation of the ascending aorta (Baer, Taussig and Oppenheimer, 1943).

The various defects so far reported may be classified and summarized as follows.

Skeletal Defects.

The Extremities.

In the long bones of the extremities, the length is increased and the breadth is diminished, more especially the metacarpals, metatarsals and phalanges. This, together with the poor development of the subcutaneous tissue and muscles, is responsible for the spider-like appearance of the hands and feet. It also gives rise to a disproportion between the length of the extremities and the height. The following abnormalities are also mentioned: hammer-toe, spur on the *os calcis*, abnormally high position of the patella, and exostoses.

The Spine.

In the spine kyphosis and scoliosis are common; they are due to the laxity of the ligaments and to the hypotonia of the muscles (see below). *Spina bifida occulta* is also mentioned.

The Thorax.

In the thorax the chief abnormality is a funnel-shaped deformity of the sternum and the adjacent parts of the framework of the thorax. "Pigeon-breast" also occurs. (It is doubtful whether this is correctly described as "pigeon-breast".)

The Skull.

In the skull dolichocephaly is the rule, but brachycephaly has been reported. Hypertelorism, deformity of the *seta turcica* and orbits, a highly arched palate and cleft palate have all been mentioned. The supraorbital ridges may be prominent, and the skull may be asymmetrical. A long and prominent lower jaw, which tends to drop, may be present. The teeth may be crowded or displaced, or there may be a double row of teeth.

Muscles, Ligaments and Joints.

In the muscles, ligaments and joints the chief characteristics are poor muscular development, muscular hypotonia (but relatively little loss of voluntary motor power) and laxity of ligaments. The muscular hypotonia may not be a hypotonia of nervous origin, but the diminished resistance to passive movement appears to be related to defective muscular development and to the laxity of ligaments.

These three factors are fairly constant and account for the following: spinal curvatures; winged scapulae; hyperextensibility of joints, especially those of the hands, feet, knees and elbows; *pes planus*; *genu recurvatum*; subluxation of joints; congenital dislocation of the hip joints. Contractures also may be present, especially of the fingers, less commonly of the thigh.

Skin and Subcutaneous Tissue.

The chief abnormalities in the skin and subcutaneous tissue are webbed fingers and deficiency of subcutaneous fat.

Face.

The face is long and thin and the eyes are wide apart. The subject has an aged and melancholy expression which is accentuated in children by the wearing of glasses for the ocular defects.

Ears.

The ears are characterized by enlargement, deformity, cartilagenous defects and impairment of hearing.

Eyes.

Numerous eye defects may be present. The first to be mentioned is congenital bilateral dislocation of the lens, complete or incomplete. This is not necessarily in the



FIGURE I.

Photograph of M.F. with outstretched arms.

vertical plane, as is usually the case in dislocation not associated with arachnodactyly. When the lens lies in the anterior chamber, glaucoma may be present. The diameter of the lens may be less than normal, and its form tends to be more spherical owing to defect of the suspensory ligament.

Iridodonesis (a wavy movement of the iris on suddenly turning the eyes towards one side) may be present, from the lens's being imperfectly supported.

Shallowness of the anterior chamber may be due to displacement of the lens.

Myopia—usually lenticular, less commonly axial—may be a feature.

Megalocornea, microcornea, microphthalmos and hydrophthalmos are other likely defects.

The occurrence of miosis and of imperfect reaction to mydriatics has been attributed by Fletcher and Southworth (1938) to fibrosis; but Dvorak-Theobald (1940) maintains that it is due to good development of the sphincter muscle (fourth fetal month) and defective development of the dilator muscle (sixth fetal month).

Remnants of pupillary membrane may be left.

Aniridia, atrophy of the iris or *heterochromia iridis* may be present, as may coloboma of the lens, iris or chorioid, aplasia of the zonula or deficiency of the lower lids. Nystagmus and divergent or convergent strabismus are other abnormalities found.

Cardiovascular System.

The cardiovascular anomalies encountered in arachnodactyly have been reviewed by Uyeyama, Kondo and Kamins (1947), and the reader is referred to their paper for the literature on the subject. The anomalies include the following.

In the heart there may be patent *foramen ovale* and other defects of the interauricular septum, patent inter-ventricular septum and fenestration of the aortic valves.

In the great vessels there may be congenital aneurysmal dilatation of the ascending aorta proximal to the arch, constriction of the arch of the aorta, *medionecrosis aortae idiopathica cystica* and dissecting aneurysm of the aorta and medionecrosis of the pulmonary artery. Uyeyama *et alii* suggest that the appearance of medionecrosis, dissecting aneurysm and rupture in later life may be due to a developmental anomaly of the *vasa vasorum* of the aorta, so that they become progressively less able to nourish the media.

Lungs.

Abnormal lobulation may be found in the lungs.

Endocrine System and Genitalia.

Imperfect development of the genitalia and of the secondary sexual characteristics may occur.

Other Abnormalities.

Other abnormalities, rare and of doubtful relevance to the syndrome, may involve (a) the intestines, which may be of abnormal length, or (b) the nervous system. If the latter is involved, there may be (i) mental retardation, or (ii) signs resembling those of Friedreich's ataxia (ataxia, signs of a pyramidal lesion, *pes cavus*).

Incidence of the More Important Anomalies.

The arachnodactylic proportions constitute the most constant feature of the syndrome.

In a series of 204 cases collected by Rados (1942), ocular anomalies were present in 85% of patients (in 65% due to congenital dislocation of the lens and in 20% due to other anomalies). Dislocation of the lens is commoner in males than in females, the ratio being 1.4 to 1.0. On the other hand, other ocular signs are commoner in females than in males, the ratio being 1.4 to 1.0. There were more than twice the number of females without ocular symptoms as compared with males.

In Rados's series, cardiac signs were present in 17% and loss of hearing in 3% of cases.

There also appears to be a high incidence of a spur on the *os calcis*, muscular underdevelopment and atonia, and deficiency of subcutaneous fat; but exact figures are not available.

Role of Heredity.

The role of heredity in the etiology of the disease has been indicated since the publication of the papers by Méry and Babonneix in 1902 (one sister and father and mother affected). Several pedigrees, notably those collected by Young (1929), de Haas (1930) and Weve (1931) confirm this view. In the statistical analysis by Rados already referred to, the influence of heredity was definite in 29% of case histories and questionable in another 19%.

The mode of inheritance appears to be that of a Mendelian dominant character (Weve, 1931).

REPORTS OF CASES.

So far, only four cases of arachnodactyly have been reported in Australia: one by Ingram and Inglis (1931), in which muscular hypotonia was a prominent feature, and three by Halliday and Laws (1944), in which congenital dislocation of the lens was present. In all these cases a history of the disease in other members of the family was obtained.

The two cases about to be described exhibit features of considerable interest, particularly as regards the skeletal changes and the character of the congenital heart lesions which were present. The first patient was under the

care of Dr. F. C. Crossle already referred to. The second patient was under the care of one of us (C.G.L.) at the Royal Prince Alfred Hospital.

CASE I.—The patient, M.F., was a girl, aged seventeen years, born in Noumea, of French parentage. She was referred to Dr. F. C. Crossle in November, 1945, on account of menorrhagia, which had been so severe as to necessitate two blood transfusions during the previous six months. The patient had suffered from erysipelas at the age of two years, and had undergone an operation for a small palatal defect at the age of seven years. She has always been tall. There was no evidence of mental retardation at school; she studied well and obtained a high position in her classes (Figure II). She did not suffer from dyspnoea, but took plenty of exercise without difficulty in breathing and was a good swimmer. Her menstrual periods were late in appearing; she began to menstruate at the age of sixteen years and at first the cycle was of twenty-eight days' duration, the period lasting for seven days. In January,



FIGURE II.

Photograph of M.F. as a child.

1945, she had a severe uterine hæmorrhage, necessitating curettage and blood transfusion. Subsequently her menstrual periods were normal until June, 1945, when she suffered in a similar way and received similar treatment. Apropos of this aspect of her history Dr. Crossle remarks: "I must confess I listened to this history with the scepticism habitual to our profession—almost a conditioned reflex—but I was wrong."

The patient was the third child of a family of four. Her father, her mother and the remainder of the family were all in good health and of normal stature. One of her relatives on the maternal side was tall but in good health. Her mother had been free of illnesses during her pregnancy.

On examination of the patient, her appearance was that of a tall, lean, slender girl, with eyes wide apart and open, imparting a startled expression to the countenance. The skin was rather dry; the subcutaneous fat was scanty and the muscular development poor. The breasts were poorly developed and the pubic and axillary hair was sparse, in contrast with the hair on the scalp, which was coarse and thick. The most striking feature was that of the very long and slender arms, legs, hands, feet, fingers and toes. There was considerable disproportion between the span and the height (Figure I), the span being six feet three inches and

the height five feet eight and three-quarter inches, while the weight was only seven stone ten pounds. The antero-posterior diameter of the chest was small in comparison with the transverse diameter; there was a pronounced funnel-shaped depression in the middle line anteriorly, and some flattening of the right thoracic wall (Figures III and IV). The skull was dolichocephalic and the bridge of the nose was somewhat depressed. The teeth were crowded and the palate was highly arched. Her joints, especially the wrist joints, were hyperextensible, and the muscular tone as judged by the resistance to passive movement appeared to be poor. She had *pes planus*, *genu recurvatum*, knock-knee (Figure II) and dorso-lumbar scoliosis.

The pulse was normal in rate and rhythm and the blood pressure was 128 millimetres of mercury, maximum, and 72 millimetres, minimum. The apex beat was in the fifth left intercostal space, one inch outside the mid-clavicular line, and the area of deep cardiac dullness extended outwards the same distance. A loud, harsh, continuous murmur, waxing during systole and waning during diastole, was heard with maximum intensity at the second left intercostal space close to the manubrium sterni and propagated over a wide area at the base of the heart. The second sound was accentuated in the pulmonary area.

An electrocardiogram revealed no axis deviation; the P-R interval was 0.14 second. The T wave in Lead II was somewhat flattened and that in Lead III inverted. Lead IV findings were normal. A comprehensive X-ray examination gave results which will be discussed later.

The condition of the pubic and axillary hair and of the breasts has already been referred to. The external genitalia were poorly developed, and on rectal examination the uterus was found to be infantile in size. The basal metabolic rate was -20%; the blood calcium content was raised (13.6 milligrammes per centum) and the excretion of 17-ketosteroids was normal. The pituitary fossa was small.

Some anaemia was present, as might have been expected from the haemorrhage. The erythrocytes numbered 4,600,000 per cubic millimetre; the haemoglobin value was 12.4 grammes per centum; the leucocytes numbered 9900 per cubic millimetre (6% neutrophils, 32% lymphocytes, 8% monocytes); platelets numbered 200,000 per cubic millimetre; the bleeding time was three and a half minutes; the coagulation time was two and a half minutes.

The muscular hypotonia already mentioned was probably not of nervous origin. No abnormality was detected on examination of the nervous system. The voluntary motor power was good and there were no ocular defects. Vision was normal and the fundi and visual fields were normal (Dr. E. V. W. Pockley).

The patient was given five milligrammes of progestin daily, and after three weeks the internal haemorrhage ceased. However, in view of the previous severe haemorrhages and of the fact that the patient was returning to Noumea, it was decided to perform partial hysterectomy. At operation a small uterus was revealed and on pathological examination an adenoma of the body of the uterus was found.

It was concluded that the patient was suffering from arachnodactyly, with patent *ductus arteriosus* and an adenoma of the uterus.

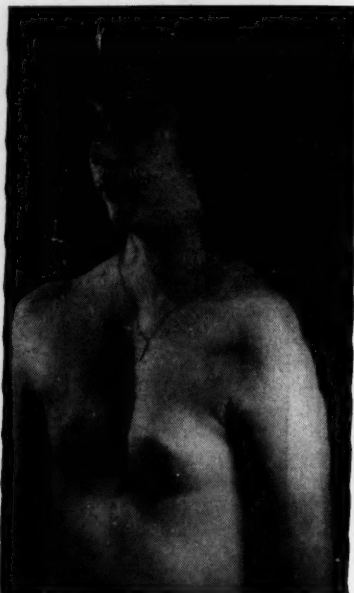


FIGURE III.
View of the chest of M.F., showing type of deformity in arachnodactyly.

CASE II.—L.McB. was a girl, aged fourteen years, who had been in her usual health until the middle of May, 1948, when she began to suffer from drowsiness, restlessness and loss of energy. About the same time, she complained of shortness of breath on walking, and her legs felt heavy. Shortly after this she contracted a respiratory infection initiated by a shivering attack and accompanied by a cough without sputum. Oedema of the face and legs developed, and finally her abdomen became swollen. All these symptoms had considerably subsided within a fortnight under treatment with sulphonamides and digitalis, and at the time of her admission to the Royal Prince Alfred Hospital, on June 9, 1948, she felt well and the swelling of the face, feet and abdomen had disappeared. Inquiry into the previous health elicited the information that she had been a "blue baby" immediately after birth, but there had since been no cyanotic episodes. In 1943 and again in 1946 she had been admitted to hospital suffering from osteomyelitis of the right hip, and on both these occasions the urine was found to contain albumin, red cells and occasional casts; but the urea concentration test showed that the concentrating power of the kidneys was about normal.

On examination on June 9, 1948, the patient was an undersized girl with a rather sad facial expression and slight cyanosis of the lips. She presented an emaciated appearance owing to deficiency of subcutaneous fat and poor muscular development. The breasts were poorly

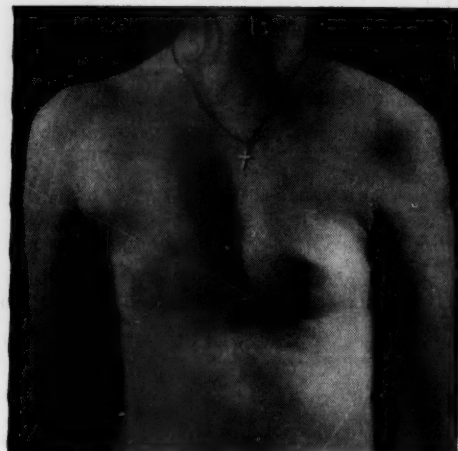


FIGURE IV.
View of the chest of M.F., showing type of deformity in arachnodactyly.

developed and there was no sign of growth of pubic or axillary hair. The limbs, especially the upper limbs, appeared to be long in proportion to the trunk, the hands reaching almost halfway down the thighs when the patient was in the erect posture. The fingers and toes were abnormally long, thin and "spider-like"; there was webbing between the fourth and fifth fingers of each hand, and a flexion deformity of both little fingers was noted (Figure V). The great toes were enormous (Figure VI). The arch of the foot was imperfectly developed, and the fingers and wrist joints were hyperextensible. The patellae were abnormally small, and crepitus could be elicited at the knee joints. There was some limitation of rotation at the right hip, probably connected with her former osteomyelitis. Examination of the spine revealed slight scoliosis in the dorso-lumbar region, and the thorax was flat, the transverse diameter being much greater than the antero-posterior diameter.

The radial artery was not thickened; the radial pulse rate was 100 per minute; the pulse rhythm was regular in time and amplitude. The blood pressure was 180 millimetres of mercury, maximum, and 120 millimetres, minimum.

The apex beat was situated in the fourth left intercostal space half an inch outside the mid-clavicular line; the area of deep cardiac dullness extended a similar distance to the left and could just be defined a short distance to the right of the sternum. A systolic thrill could be felt over the whole precordial region, being maximal over the mitral and

pulmonary areas. A harsh systolic murmur was heard at the mitral area and a harsh "machinery murmur" with maximum intensity over the third left costal cartilage was audible at the base.

Pulsation was easily felt over the femoral, posterior tibial and dorsalis pedis arteries. The electrocardiogram was normal.

A comprehensive X-ray examination gave findings which will be discussed later.

A few crepitant râles were audible over the bases of the lungs, and the liver was palpable one and a half inches below the costal margin and slightly tender. Both of these signs disappeared after two weeks' bed rest.

The urine had a specific gravity of 1016, and was acid in reaction; it contained albumin (one-third by the boiling test), red blood corpuscles (20 to 30 per high-power dry field), a few granular casts and leucocytes. The urea concentration test on this occasion showed impairment of concentrating power (percentage of urea 1.0% to 1.6%, quantity of urine 63 to 94 millilitres; specific gravity 1006 to 1010). The kidneys were not palpable, and pyelography revealed a normal outline of the renal pelvis.



FIGURE V.

The hands of L.McB. showing webbing of fingers.

The blood urea content was 52 milligrammes per centum; the blood cholesterol content was 320 milligrammes per centum; the total plasma protein content was 6.5 grammes per centum.

A slight degree of anæmia was present (the hæmoglobin value was 13 grammes per centum), but otherwise no abnormality of importance was detected in the hæmatopoietic system.

Diminished resistance to passive movement was present, but no loss of motor power could be demonstrated. Otherwise no abnormality of the nervous system or of the eyes was detected. The patient had not yet menstruated. Investigation of the other systems also showed no impairment.

The conclusion was drawn that the patient was suffering from arachnodactyly, patent ductus arteriosus and chronic nephritis. No history could be obtained of a similar condition in blood relations, but there was no opportunity of examining other members of the family.

The Radiological Appearances in the Case of M.F.

The X-ray pictures of the patient (M.F.) available for examination are as follows: those of both hands and both feet; that of the right quadrant of the thorax, which includes the shoulder joint and the upper two-thirds of the humerus; those of the pelvis and both hip joints with the upper parts of both femora; those of the skull and

finally the chest. Parts of the vertebral column are shown in the various films, but no special pictures were taken at the time.

The Hands and Feet.

The appearance of the bones of the hands and feet of M.F. is in complete accord with the descriptions of other writers. They appear to be more slender than the normal, but actually they are little narrower at their narrowest point than the same bones in a normal girl of the same age. The epiphyseal ends of the bones are the same width as the normal. The terminal phalanges, however, differ from the normal in an absence of any mushrooming. The



FIGURE VI.

The feet of L.McB.

cortex, the bony trabeculae, and the general structure of the medullary cavity are all normal in appearance.

The one essential difference from the normal is an increase in the length of the bones, and the appearance would indicate that the embryonic arrangement of the cartilage cells had been perfectly normal, but that either the cartilage cells were more active in their behaviour, or that the processes of modelling were modified.

The Pelvis.

The radiological appearance of the pelvis of M.F. is shown in Figure VII. The structure of the two femora is in the same category as that of the hands and feet. The greatest width at the head of the femur is the same as that of the normal girl. The neck of the femur is elongated and slender; it is actually an eighth of an inch narrower at its narrowest point than the neck of the femur of the normal girl. The bony trabeculae are normally arranged and pass into the cortex of the shaft along the lines of pressure in a perfectly normal fashion. The general increase in length is also illustrated by the greater distance between the tips of the greater and lesser trochanters and also by their somewhat more slender appearance. The ilium is elongated, as also are the pubic and ischial rami. In this case the innominate bone is somewhat shorter on the left than on the right

side, because on the left side ankylosis of the sacro-iliac joints and sacralization of the transverse process of the fifth lumbar vertebra have taken place. The pelvis is wide transversely as well as from above downwards. The width is an inch greater than the normal (Figure VIII) and the distance from the sacro-iliac joint to the centre of the pubis is half an inch greater, measured on the X-ray picture.

The Shoulder Girdle.

In the shoulder girdle the bones generally appear to be more slender than in the normal subject, with the exception of the head of the humerus, which is wider and more robust in M.F. (Figure IX) than it is in the normal control, C. (Figure X). The shaft of the humerus, however, is narrower in M.F. than it is in the normal (C.).

The Thoracic Cage.

The photographs of M.F. (Figures III and IV) show strikingly the deformity of the thoracic cage reported by other observers. The sternum is sunken backwards and twisted, the two breasts are asymmetrically disposed and separated by the deep cleft indicating the line of the sunken sternum. The inner ends of the clavicles are relatively low and displaced to the right on the anterior thoracic wall. The supraclavicular areas are unduly large. Furthermore, the photographs demonstrate that the lower part of the thoracic cage is constricted and narrow in proportion to the width of the shoulders.

The X-ray pictures (Figures IX and XI) give an almost complete explanation of the appearance seen in the photographs of the individual M.F. The following are the outstanding features of the skiagrams: the relatively large supraclavicular areas, which are here greater on the right than on the left side; the extreme length of the lung fields; the two domes of the diaphragm on the same level; the scoliosis to the left and a cardiac shadow suggestive of a congenital heart anomaly. The physical features seem to be explainable on a difference in the relative rates of growth between the different elements of the cage, and between the cage and its contents. The thoracic cage in M.F. is more voluminous than its contents; therefore the costal elements must bend to accommodate themselves to the size of the contents. The one predominating feature which seems to explain the form of the thorax is the excessive growth in length of the rib elements. The relative increase in length appears to be greater in the case of the ribs than it is in the bones of the extremities. The first rib lies almost entirely above the level of the clavicle. The neck of the rib is relatively long and the tubercle of the rib forms an elongated projection directed upwards. The distance between the inner borders of the first ribs at the widest point is five inches in M.F. and four inches in the normal C.; this makes the inlet of the thorax very wide (Figures XI and XII). The remaining ribs show the same features—if anything, somewhat exaggerated. The ribs pass upwards and outwards from the head of the rib for a very considerable distance and then wind round the thoracic wall. The ribs are all narrower in M.F. than they are in the normal C. The length from the head to the tubercle of the rib forms a very prominent feature, because the articular surface of the tubercle of the rib is in every instance at a considerable distance from the corresponding articular surface on the transverse process of the vertebra, and in the lower series the transverse processes are lying midway between the necks of the ribs. Thus the radiological picture gives expression to the extreme laxity of the ligaments at the costotransverse joint. The joint spaces appear to be from a quarter to half an inch in length. Whatever stabilizing effect the ribs may have on the maintenance of the correct curves of the spinal column in the normal individual would appear to be entirely absent in arachnodactyly. As far as can be determined from the X-ray pictures, the size of the true transverse processes of the thoracic vertebrae does not differ from the normal. The problem of accommodating the contents of the thorax to the thoracic cage is somewhat analogous to the problem which arises in the normal growth of the head. In normal growth the brain probably exercises no mechanical influence on the

form of the skull and the skull offers no mechanical barrier to the growth of the brain. Rather they grow harmoniously together. In hydrocephaly this harmony is disrupted and the pressure of its contents deforms the cranium. This is the reverse of that which takes place in the thorax in arachnodactyly.

The Vertebrae.

In the cervical region there is pronounced elongation of the anterior tubercles of the transverse processes. In the lumbar region the transverse processes of the fourth lumbar vertebra appear to be somewhat long and slender, but not beyond the range of the normal variation. There is sacralization of the left transverse process of the fifth lumbar vertebra. The width of the sacrum in M.F. measures one inch more than in the normal control. There is no doubt that the costal elements in the cervical region are elongated, and that the great width of the pelvis is in great measure produced by the excessive growth of the alae formed from the costal elements of the sacrum (Figures VII and VIII).

The Skull.

The early morphologists were interested in the segmental evolution of the vertebrates. It would be interesting, but unprofitable here, to speculate on the homologies of the appendicular skeleton, the ribs and the laryngeal cartilages. It is sufficient to point out that in M.F. the body of the hyoid bone lies well below the level of the lower jaw, owing to an increase in the length and thickness of the styloid process and of the ossified stylohyoid ligaments (Figures XIII and XIV).

The skull presents a series of features bearing a strong resemblance to those found in the condition which Greig recognized in 1924 as a congenital cranio-facial deformity and named hypertelorism—from the Greek meaning "too much apart". The photographs of M.F., taken when she was a small child, show the increased width between the eyes, the broad nose and prominent frontal bosses. The present photograph does not show these features so clearly as they could be seen in the patient herself. However, the X-ray picture of the skull reveals a collection of significant features. In the postero-anterior view of the skull, the orbits are widely separated (Figure XIII). In the interorbital region are seen enlarged ethmoidal sinuses communicating with expanded frontal sinuses, which extend outwards almost to the external orbital process of the frontal bone. No *crista galli* can be seen, but there is a shadow above this region suggesting ossification of the *fala cerebri*; this shadow is small and is not regarded as being significant. The anterior nasal aperture is wide and almost circular in form, in contrast with the pyriform shape of that in the normal C. (Figure XV). The bony margins of the maxilla are flared outwards. The appearance of the nasal aperture suggests that the orbital processes of the maxilla have been rolled outwards and backwards. The postero-anterior view of the roof of the orbit shows a lack of clear definition, because the roof, as we shall see, is more vertically disposed than it is in the normal. The enlarged styloid processes are clearly seen in this view. Craniosynostosis has been described in arachnodactyly. In M.F. the sagittal, lambdoidal and coronal sutures are less clearly shown than in the normal and are in great measure closed.

The lateral views of the skull show clearly the greater closure of the sutures in M.F. (Figure XIV). However, the most striking feature of the lateral views is the form of the neurocranium. The skull posterior to the level of the pituitary fossa is almost globular in appearance, whereas the frontal region lacks height and fullness in the presence of frontal bossing. The appearance is brought about by the two roofs of the orbits' lying on the same plane as the basioccipital bone. The roofs seem to extend well up on the frontal bone and are set at an angle of 45° to the vertical. In the normal C. the roof of the orbit is at an angle of approximately 120° to the basioccipital bone and the roof of the orbit approximates more to the horizontal; therefore, the height of the frontal lobe above the roof of the orbit is greater in the normal than in M.F. (Figure XVI). In the discussion of the nature of

the disease, the effect of the increase in growth of the cartilaginous *basis cranii* and in particular of the orbito-sphenoids, will be pointed out.

Fluoroscopic examination of the chest revealed a large aortic knob, a prominent pulmonary conus, pronounced hilar dance and enlargement of the left and right ventricles. A patent *ductus arteriosus* was strongly suggested.

The Radiological Appearances in the Case of L.McB.

In the case of L.McB. the radiological examination is confined to pictures of the limbs, the skull and the chest. In the films of the hands and feet is seen lengthening of the metacarpals, metatarsals and phalanges, with an absence of mushrooming in the terminal parts of the phalanges.

The long bones, particularly in the lower limbs, all show evidence of atrophic changes with decalcification and accentuation of the longitudinal trabeculae. The history of osteomyelitis and nephritis is sufficient to account for the condition seen. The patellae are somewhat high in position.

The X-ray picture of the chest shows an enlargement of the region of the pulmonary conus and a cardiac form indicative of a congenital heart anomaly. There is no evidence of abnormal osseous changes in the thoracic walls. The ribs and vertebrae are normal in appearance, and there is no scoliosis (Figure XVII).

The pictures of the skull also show no departure from the normal. The orbits are not separated; the anterior nasal aperture is pyriform in shape; there is no increase in size of the styloid process; and in the lateral skiagram the endocranial form shows a normal frontal region. The skiagrams show no evidence of craniostenosis (Figures XVIII and XIX).

In the cervical vertebrae seen in the skull pictures, no increase in size of the anterior tubercles of the transverse processes is apparent.

Thus in L.McB., apart from the pathological changes secondary to osteomyelitis, the only abnormal appearances in the X-ray pictures are those of the hands and feet and of the heart.

DISCUSSION.

The Nature of Arachnodactyly.

Rados (1942) summarizes the various theories to account for the aetiology and pathogenesis of arachnodactyly and concedes the greatest credence to those theories which "consider a disturbance in the germ plasm as the basis of the syndrome".

A study of all the reported cases leaves little doubt that the condition is congenital and that it is developed early in intrauterine life. The nature of the various manifestations of the disease suggests the impossibility of its developing after birth in a formerly normal person.

The interpretation of the condition opens up problems in genetics, morphology, and general medicine. Before the geneticist can fully analyse arachnodactyly it is necessary to furnish him with accurate morphological and clinical material.

The first difficulty which arises in the attempt to provide such material is the giving of an adequate definition of the condition. Is it essential that the typical arachnodactylic hands and feet should be present? This has so far been assumed by all the writers on the subject, although not explicitly stated. It is the outstanding feature of the condition. It is associated with many other signs varying in their incidence in different cases. Thus in our two cases, definite changes present in the skull and thorax in M.F. are absent in L.McB. This is in keeping with the cases observed by others. Neither M.F. nor L.McB. has dislocation of the lens, although the association is a common one.

Miss Ida Mann, in a personal communication, has provided us with critical material in the matter. She has given us the record of a case in which every member of the family for four generations has a history of either arachnodactyly only or of arachnodactyly and dislocated lenses (Figure XX). It is seen that arachnodactyly occurs in every case. If dislocated lenses had occurred alone in

this family, would this have to be considered as an incomplete form of the same syndrome? This raises many interesting problems which cannot be answered at this stage in our knowledge. For example, are some patients with congenital heart disease to be regarded as exhibiting isolated components of a syndrome which includes arachnodactyly? The problem will be considered later. For the moment only those cases in which the long hands and feet are present will be regarded as constituting the entity "arachnodactyly".

The Morphological Factors in Arachnodactyly.

The relevant morphological factors fall under three headings: (i) the principles of cartilage proliferation and differentiation first enunciated by John Hunter and later elaborated in the writings of Keith (1920), Harris (1933) and Stump (1925); (ii) the general principles of bodily growth worked out by Scammon (1927) and his school; and (iii) the principles underlying the production of abnormalities with particular reference to time factors in the embryo, which found expression in the work of Stockard (1921).

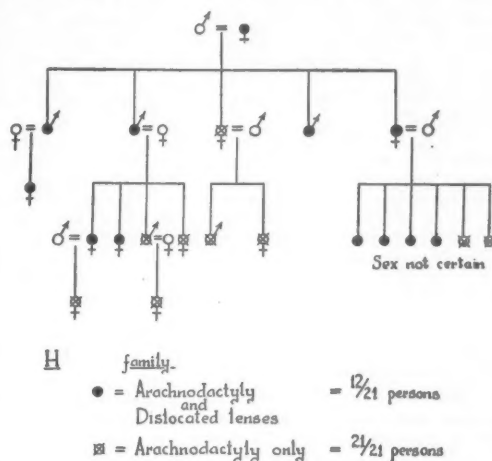


FIGURE XX.

H. Family. (From data supplied by Professor Ida Mann.)

The first of these principles may usefully be introduced by a discussion of the fitness of the term "arachnodactyly". This name is given because the condition is characterized by an unusual length of the hands and feet. The name is fitting in so far as no cases are recorded, or at present known, in which this sign is absent. Undue attention to this outstanding feature, however, has tended to detract from the understanding of the widespread tissue changes in other regions. Tissue changes would appear to involve all the tissues derived from the primitive mesenchyme cell, and the increase in length of bone is merely an expression of the more general tissue changes.

Méry and Babonneix (1902) reported the same case as Marfan described six years previously. They proposed the name "hyperchondroplasia", because (to quote from Rados, 1942) "the roentgenograms showed an unusual size of the cartilages of the epiphyses".

Achard (1902) chose the name "arachnodactyly", and Rados, quoting from him, states that "ossification of the skeleton was normal, with no hyperchondroplasia".

The review of the literature available to us and our own cases show no evidence of enlargement of the epiphyses. It is therefore suggested, either that Rados has misinterpreted the meaning of the term "hyperchondroplasia" as used by Méry and Babonneix, or that the enlargement of the epiphyses in their case was secondary. Against the latter supposition is the fact that Marfan described the extreme length of the hands and feet.

It is surprising that the term "hyperchondroplasia" has not attracted more attention, because, as we shall see, the condition is the antithesis of achondroplasia in practically every feature. This may be due to a difference in the interpretation of the word "hyperplasia" as used in reference to anatomical states. The literal meaning of the word "hyperplasia" is an increase in moulding or an excessive moulding. It is also used to indicate an increase in number of the individual tissue elements, whereby the bulk of the part or organ is increased. Again, the term is restricted by some to denote proliferative changes in a tissue which do not occur to meet a demand for increased functional activity—thus differing from hypertrophy.

If the term is restricted to signify an increased activity of the cartilage cells, producing an increased length of bone with a maximum degree of moulding, the name is appropriate.

Keith (1920) has shown that in "multiple exostoses" there is a failure of the process of modelling, or pruning, of the diaphyses or shafts of bone, and that the exostoses arise from the diaphyses in close association with the epiphyseal line. He emphasizes John Hunter's important discovery that the shafts of the bone grow in length by a double process. There are, first, the deposition of new bone in the cartilaginous growth disk at the ends of the shaft, and in the second place, a modelling process by which the new bone thus laid down is pruned, reformed and incorporated as an intrinsic architectural part of the cylindrical shaft.

Keith also considered that achondroplasia is essentially a condition in which "there is no arrest in the growth of cartilage; there is only an arrest of the production of bone in cartilage It is well known that the cartilage cells, as a normal process of ossification approaches, undergo a peculiar preparatory change. They divide rapidly; they become arranged in columns; they enlarge; and they become vacuolated The essential nature of achondroplasia is that this preparatory action is absent—there is neither rapid division, columnar arrangement, vacuolation, nor hypertrophy. The cartilage cells remain passive, they do not offer themselves as a sacrifice to the process of ossification."

The disorderly ossification in achondroplasia is expressed somewhat differently by Harris (1933), who makes the following statement about the femur:

The shaft displays an absence of the orderly arrangement of longitudinal and transverse trabeculae. The pattern resembles that which would be obtained by telescoping a normal femur in its length. Otherwise we can regard the femur as consisting of a series of lines of arrested growth in the whole of its extent as though presenting a summation of lines of arrested growth.

In arachnodactyly there is no failure in differentiation. There appears to be merely an increase in the proliferation rate with perhaps some increase in the modelling factor. It must ever be borne in mind, however, that bone is only one of the tissues involved, and further discussion will be deferred until other factors which may be applicable to the interpretation are considered.

The work of Stump (1925) on the development of bone is significant. He demonstrated the development of bone from the primitive mesenchyme cell; but he went much further. He showed that the same primitive mesenchyme cell gave rise to the whole mechanism of bone, joint, ligament, muscle and vessels. The primitive mesenchyme cell differentiated into chondroblasts, fibroblasts, osteoblasts and angioblasts. In arachnodactyly, demonstration of changes in the mesenchyme derivatives is difficult with the exception of bone, in which the skiagrams give definite indications. The changes in the other connective tissues must be inferred from the clinical signs—the laxity of ligaments, the flaccidity of muscles, the looseness of joints, the dislocation of the lens—and from post-mortem examination, as in the work of Baer *et alii* (1943) on the connective tissue changes in the walls of the aorta.

It is a reasonable hypothesis that the connective tissues undergo analogous changes to those seen in the bone—an increase in proliferation rate without failure of differen-

tiation. This naturally leads to the consideration of the second morphological principle concerned with the rate of growth.

Our knowledge of certain aspects of growth is largely due to the work of Scammon (1927) who has demonstrated that there are four different types and rates of growth in the development of the individual. These types he classified into (a) general or skeletal, (b) nervous, (c) lymphoid and (d) genital. The names themselves suggest the hypothesis that any alteration in the timing of these types would produce varieties of individuals in accordance with such alteration. Normal growth may be defined as that orderly sequence of events in time which determines and delimits the particular individual. Scammon has shown that this sequence is in fact a harmony of at least four orderly sequences of events.

An hereditary pattern becomes not merely a pattern of structure but a pattern of time, and it is conceivable that the pattern of time is chromosomal.

Allied with such a concept is the work of Mills (1917), who showed that there are various types of bodily habitus, from the "hyperthenic" to the "asthenic", and it "cannot be too strongly urged that one type of bodily habitus and one type of visceral topography cannot be acquired".

In writing on the thymus gland in the Chinese (1927), one of us (J.L.S.) suggested, under the influence of the writings of Keith and Bolk, that perhaps the racial characteristics of the Mongolian were due to a difference in the combining proportions of the various endocrine influences. At the same time, it was suggested that some anthropological differences might find their expression in a difference of time relationships which produced structural differences; that the periods of foetal life, infancy, childhood *et cetera* are different in different races; that the onset of puberty might be delayed in the Chinese, the delay accounting for their hairlessness and for the general diminution of secondary sexual characters.

The problem of arachnodactyly has in it this concept of time. There is a change in the time factors concerned with the differentiation of mesenchyme.

Associated with this question of habitus there is in the various races of mankind, prehistoric and recent, a habitus for each race, as it were, and these in some ways resemble pathological states. Thus the aboriginal Australian, Neanderthal man and the gorilla resemble subjects of acromegaly. It may be going too far to suggest that the hands of the arachnodactylic simulate those of the gibbon; but such an observation seems to emphasize that in these observations pattern is the outstanding feature.

The third morphological principle we owe to the work of Stockard (1921), who was able to produce various malformations, the type of which depended upon the exact time of development.

The hypothesis which is here put forward to explain the nature of arachnodactyly is that "arachnodactyly" is an hereditary condition in which there is a disturbance of the time factors and hence of the orderly sequence of events which lead to the growth of the normal condition; that it is particularly the sequence of events in the general or skeletal type of Scammon which is disturbed; that the change occurs early in development, probably when the primitive mesenchyme cells are undergoing proliferation, but antecedent to differentiation; finally, that the time of action is somewhat inconstant within narrow limits. It is further suggested that it may be these very time factors which are transmitted by certain chromosomes. This, however, is a matter for the geneticist.

Acceptance of this hypothesis requires a reasonable explanation of the outstanding features in arachnodactyly. These features may be enumerated as follows: (i) the constant presence of the elongated fingers and toes, (ii) the inconstant presence of other associated features.

To reconcile (i) and (ii), it is necessary again to call in the aid of morphological principles. In the early embryo, proliferation precedes differentiation. Water-soluble vitamins appear to play an important role in proliferation and fat-soluble vitamins in differentiation. Arachnodactyly, as we have suggested, is peculiarly a

condition which occurs in the proliferative stage, altering the time factor of the general or skeletal growth.

The observations of Miss Sabin on the living, growing embryo show that the proliferative mitoses occur in waves at particular moments; and the work of the experimental morphologists would suggest that it is at these critical stages of waves of division that abnormalities occur.

It has further been shown that differentiation of the limbs takes place proximo-distally, the proximal shoulder girdle musculature having already differentiated while the distal end of the limb bud is still in the proliferative stage.

If, therefore, we postulate an inconstancy between individuals in the time factor leading to variation, it is suggested that in those cases in which no skull or thoracic changes are present, the more proximal parts had already begun their differentiation and only the more distal parts responded to the genetic stimulus to produce the elongated hands and feet.

Closely allied with this proximo-distal gradient there is also a cranio-caudal gradient—the head end of the embryo becomes differentiated earlier than the tail end. It is assumed, therefore, that the characteristic head and thoracic deformities have been produced by the occurrence of genetic stimulus earlier than in the types in which these head and thoracic changes are absent.

The form of the skull has already been described in the case of M.F. Young (1929), in his excellent description of arachnodactyly, described the *sella turcica* but failed to note what his pictures clearly show—namely, the axis of the roof of the orbit on the same plane as that of the basi-occiput and the other features described in M.F. Rados mentions the resemblance to hypertelorism as described by Greig (Rados, 1942). Now if by hypertelorism is meant merely the widening of the bridge of the nose, the case of M.F. presents this sign. But in Greig's description of hypertelorism a definite clinical entity is established. Hypertelorism as described by him is characterized by a wider separation of the orbits than is shown in M.F.; moreover, in his cases the disease was characterized by idiocy and by pronounced changes in the lower jaw. The condition seen in arachnodactyly simulates real hypertelorism because its production follows the same lines. When present it may be regarded as a cardinal sign of arachnodactyly.

It is interesting to observe that many writers have referred to craniosclerosis, which is also present in M.F., but not in L.McB. It is suggested that this closure of the sutures is due to a relative difference in the rate of growth between the general or skeletal and the nervous rates of Scammon, so that the containing envelope of bone adjusts itself to the volume of its contents by early closure. This is in harmony with the work of Harris, who showed that those sutures which remained open longest were those which were related to the final areas of brain expansion—namely, the parietal, temporal and pre-frontal areas.

The thoracic cage also fulfils the postulate that the changes are fully developed when manifest. Parker and Hare (1945) depict three cases closely similar to that of M.F. and although no mention is made of the rib changes, it is reasonable to infer that all the same changes are present as in M.F., and are clearly preparatory to the kyphoscoliosis so frequently referred to by other writers.

A review of the literature of arachnodactyly shows that the various authors were seeking the nature of this condition by comparing or contrasting it with such diseases of the endocrine organs as acromegaly, with such congenital diseases as achondroplasia, with bone diseases brought about by specific infective conditions, and so forth.

The general consensus of opinion would now appear to be that arachnodactyly is congenital in origin and hereditary. If the general morphological principles concerned are borne in mind, there are many features in common in the various congenital bone diseases. These features are suggestive and permit formulation of an hypothesis to explain their common nature.

Arachnodactyly and Achondroplasia (Chondrodystrophia).

The contrasting features of arachnodactyly and achondroplasia are sufficiently obvious, and so a detailed discussion is unnecessary. In arachnodactyly the long bones are well formed and show merely the results of increased cartilaginous proliferation; on the other hand, in achondroplasia, according to Keith, there is no defect in cartilage formation, but a defect in bone formed from cartilage in the period of differentiation. The contrast in origin gives a reasonable explanation of the features in the two conditions. In arachnodactyly the form of the thorax is determined by the shaping of the ribs to the volume of the contents; for, apparently, the visceral contents do not grow at the same rate relative to the ribs as in the normal. The shape of the thorax in achondroplasia is similarly explained, but the difference in the relative rates of growth of the parietes and of the contents is the reverse of that in arachnodactyly. The chest thus conforms to the asthenic type of Mills in arachnodactyly and to his hypersthenic type in achondroplasia.

The skull appearances likewise contrast, for the same reasons. In arachnodactyly the hyperchondroplasia produces a widened base, and as the skull thus tends to outgrow the size of the contained neural contents, premature union of the sutures occurs. In achondroplasia, on the other hand, the defective development of the bones formed from the cartilaginous *basis cranii* finds its compensation in the increased growth of the bones formed in membrane.

The two conditions, which at first sight appear to be so different in nature, are essentially similar in origin. If the morphological principles concerned in their production are admitted, they differ merely in the moment of time when the orderly sequence of events which establish the normal becomes disturbed. In the one the time is that of proliferation, in the other of differentiation.

But the time in each disease varies within certain limits, and so the manifestations vary. There is no clearly defined syndrome in any of the congenital bone conditions. Some signs such as dislocation of the lens may be entirely absent and "*formes frustes*" arise in all to suggest the different moments of time at which each individual subject was first affected.

In 1925 Silfverskiöld described a case of "*a forme fruste*" of chondrodystrophia with changes simulating several of the known local malacias". In discussing the diagnosis of his case he made the following statements:

Certain clinical, histological, and roentgenological symptoms are considered characteristic of the various diseases; if all or most of these symptoms are present, there is more or less probability of the diagnosis being certain. On the other hand it follows as a matter of course that a purely symptomatologic determination of the nature of a disease will in many instances be only a vague diagnosis of probability. The literature on the so-called skeletal diseases bears more than enough evidence of this; think, for instance, of the most common group of these diseases, rachitis (rachitis tarda and inveterata) and osteomalacia. Most difficult is, naturally, the diagnosis in "*formes frustes*" and when the clinical picture seems to be due to a combination of two or more skeletal diseases.

This statement is equally applicable to a description of any cases of arachnodactyly.

CONCLUSION.

The hypothesis which has been put forward to explain the nature of arachnodactyly is now made to explain the nature of various congenital diseases, and may be stated as follows:

1. The nature of various congenital diseases is a disturbance in the time of the orderly sequence of events which lead to the normal.
2. The disturbing factor may affect the individual at any moment of time involving one or more of the four types of Scammon.
3. The orderly sequence of events may not be disturbed but the length of time involved may be affected.

It is suggested that arachnodactyly, achondroplasia, multiple exostosis and Morquio's disease (chondro-osteo-

dystrophy) are due to a disturbance of the skeletal or general growth in relation to the whole growth, the characteristic features of each group depending on the time affected.

It is further suggested that progeria, in which the period of childhood, puberty, adolescence and senility are, as it were, telescoped into a shortened period, and ateleiosis—the reverse of progeria—are due to an altered rate of the whole growth process, with the relative times for the four types of Scammon remaining unchanged.

The work of Vastine (1948) *et alii* on the X-ray examination of identical twins would suggest that time sequence is so exact in this condition that no change in rate is observable up to seventy years. But, the rates even in normal individuals must be so nearly the same as to be incapable of observation.

Furthermore, the alteration in the various diseases must be very small, for were it greater, intrauterine death must occur.

BIBLIOGRAPHY.

- Abelsdorff, G. (1932), "Arachnodactylie", *Klinische Monatsblätter für Augenheilkunde*, Volume LXXXIX, page 836.
- Achard, M. C. (1902), "Arachnodactylie", *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, Volume XIX, page 834.
- Apert, E. (1938), "Les formes frustes du syndrome dolichosténomielique de Marfan", *Nourrison*, Volume XXVI, page 1.
- Baer, R. W., Taussig, H. B., and Oppenheimer, E. H. (1943), "Congenital Aneurysmal Dilatation of the Aorta", *Bulletin of the Johns Hopkins Hospital*, Volume LXII, page 309.
- Bakker, C. (1935), "Die Linsen bei Arachnodactylie", *Archiv für Augenheilkunde*, Volume CIX, page 353.
- Bauer (1927), "Demonstration dreier Säuglinge mit Wachstumsstörungen", *Deutsche medizinische Wochenschrift*, Volume LIII, page 1116.
- Becker (1935), "Linsennektomie in der I (II) und III Generation", *Klinische Monatsblätter für Augenheilkunde*, Volume XCIV, page 547.
- Boerger, F. (1914), "Ein Fall von Dolichostenomelie (Arachnodactylie)", *Monatsschrift für Kinderheilkunde*, Volume XIII, page 335.
- Brock, J. (1927), "Arachnodactylie, eine charakteristische Form multipler Abartung", *Klinische Wochenschrift*, Volume VI, page 2239; *Monatsschrift für Kinderheilkunde*, Volume XXXVI, page 477.
- Buecklers, M. (1935), "Ectopia lentis und Marfanischer Symptomenkomplex", *Klinische Monatsblätter für Augenheilkunde*, Volume XCIV, page 109.
- Burch, F. E. (1936), "Association of Ectopia Lentis with Arachnodactylie", *Archives of Ophthalmology*, Volume XV, page 645.
- Calogero, V. N. (1936), "Contributo allo studio della sindrome di Marfan", *Bollettino d'oculistica*, Volume XV, page 847.
- Charamis, J. (1937), "Le syndrome de Marfan", *Archives d'ophthalmologie*, Volume I, page 1067.
- De Haas, H. L. (1930), "Demonstration of Brother and Sister with Arachnodactylie and Ectopia Lentis", *Nederlandsch tijdschrift voor geneeskunde*, Volume LXXIV, page 4723.
- Dor, L. (1932), "Arachnodactylie et ectopie cristallienne", *Bulletin de la Société d'ophthalmologie de Paris*, February, page 147.
- Dubois, M. (1912), "Sur un cas de dolichosténomelie", *Liège Annales de la Société médico-chirurgicale de Liège*, Volume XII, page 896.
- Dupérier, R., Dubourg, E., and Guénard, F. (1921), "Sur un cas de dolichosténomelie (arachnodactylie)", *Journal de médecine de Bordeaux*, Volume XCII, page 43.
- Dvorak, H. J. (1932), "Report of a Case of Arachnodactylia", *Proceedings of the Staff Meetings of the Mayo Clinic*, Volume VII, page 715.
- Dvorak-Theobald, G. (1940), "Histologic Study of an Eye from a Child with Arachnodactylia", *Archives of Ophthalmology*, Volume XXIV, page 1046.
- Ennema, M. C. (1935), "Heterochromie und Status dysraphicus", *Klinische Monatsblätter für Augenheilkunde*, Volume XCIV, page 391.
- Etter, L. E., and Glover, L. P. (1943), "Arachnodactylia Complicated by Dislocated Lens and Death from Rupture of a Dissecting Aneurysm of the Aorta", *The Journal of the American Medical Association*, Volume CXIII, page 88.
- Fischbach, H. (1937), "Beitrag zur Klinik der Arachnodactylie mit Hinweis auf die Erblichkeit des Leidens", *Zeitschrift für Kinderheilkunde*, Volume LVIII, page 630.
- Fleischer, B. (1939), "Ueber Arachnodactylie", *Klinische Monatsblätter für Augenheilkunde*, Volume CII, page 421; (1928) "Vorstellung eines Falles von Arachnodactylie (Dolichostenomelie)", *Münchener medizinische Wochenschrift*, Volume LXXV, page 500.
- Fowler, J. S.; quoted by Ormond, A. W., and Williams, R. G. (1924), *loc. citato*.
- Franceschetti, A. (1932), "Marfanischer Symptomenkomplex und Coloboma lentis", *Klinische Monatsblätter für Augenheilkunde*, Volume LXXXVIII, page 636.
- Futcher, P. W., and Southworth, H. (1938), "Arachnodactylia and Its Medical Complications", *Archives of Internal Medicine*, Volume LXI, page 693.
- Ganther, R. (1927), "Ein Beitrag zur Arachnodactylie", *Zeitschrift für Kinderheilkunde*, Volume XLIII, page 724.
- Giraud, P., Bocca, P., Jayle, G. E., and Mockers, —, (1938), "Dolichosténomelie", *Bulletins de la Société de pédiatrie de Paris*, Volume XXXVI, page 713.
- Goedl, H. (1937), "Arachnodactylie mit kongenitalem Uvea-Linsenkolobom", *Klinische Monatsblätter für Augenheilkunde*, Volume XCVIII, page 396.
- Grosser and Igersheimer, J. (1927), "Ueber Arachnodactylie mit typischen Augenbefund", *Klinische Wochenschrift*, Volume V, page 1116; *Medizinische Klinik*, Volume XXIII, page 967.
- Halliday, J. C., and Lawes, F. A. (1944), "Marfan's Syndrome: Arachnodactylia with Dislocation of the Crystalline Lens. Report of Three Cases in One Family", *The Medical Journal of Australia*, Volume I, page 465.
- Harris, H. A. (1931), "Board of Education. Report of the Consultative Committee on the Primary School, Appendix II"; (1933) "Bone Growth in Health and Disease".
- Hoog, J. (1876), "Congenital Luxation of the Crystalline Lens", *The Lancet*, Volume II, page 583.
- Huber, J., Lièvre, J. A., and Hector (Madame) (1937), "Arachnodactylie", *Bulletins de la Société de pédiatrie de Paris*, Volume XXXV, page 49.
- Hudson, A. D. (1932), "Congenital Dislocation of Lenses with General Developmental Abnormality of Arachnodactylia Type", *Proceedings of the Royal Society of Medicine*, Volume XXVI, page 35.
- Ingram, W. W., and Inglis, K. (1931), "Arachnodactylia Associated with Muscular Hypotonia", *The Medical Journal of Australia*, Volume II, page 238.
- Isnel, R., and Hakami (1935), "Subluxation congénitale des cristallins et arachnodactylie", *Bulletin de la Société d'ophthalmologie de Paris*, June, page 373; abstracted in *Archives of Ophthalmology*, Volume XVI, 1936, page 698.
- Keeling, G. (1902), "Unusual Refractive Change after Removal of Congenitally Dislocated Lens", *Ophthalmological Review*, Volume XXI, page 84.
- Killman, A. (1932), *Zur Kasuistik der Arachnodactylie*, *Archiv für Kinderheilkunde*, Volume XCVII, page 206; (1934) "Angeborene doppelseitige Linsennektomie und Arachnodactylie", *Klinische Monatsblätter für Augenheilkunde*, Volume XCII, page 335.
- Keith, A. (1913), "Progeria and Ateleiosis", *The Lancet*, Volume I, page 1; (1920) "Studies on the Anatomical Changes which Accompany Certain Growth-Disorders of the Human Body. I. The Nature of the Structural Alterations in the Disorder known as Multiple Exostoses", *Journal of Anatomy*, Volume LIV, page 101.
- King, E. F. (1934), "Three Cases of Arachnodactylia with Ocular Signs", *Proceedings of the Royal Society of Medicine*, Volume XXVII, page 298.
- Kurz, O. (1934), "Einige Fälle von Linsennektomie mit besonderer Berücksichtigung des konstitutionellen Momentes", *Klinische Monatsblätter für Augenheilkunde*, Volume XCII, page 193; (1936) "Irisveränderungen durch Lues bei kongenitaler Ectopia lentis (Beitrag zur pathologie des Marfanischen Syndromes)", *Archiv für Augenheilkunde*, Volume CIX, page 592.
- Lloyd, R. I. (1935), "Arachnodactylia (Dystrophia Mesodermalis Congenita Typus Marfan, Marfan's Syndrome, Dolichostenomelie)", *Archives of Ophthalmology*, Volume XIII, page 744; (1937) "A Second Group of Cases in Arachnodactylia", *ibidem*, Volume XVII, page 66.
- Malbrán, J., and Picoli, H. R. (1937), "Arachnodactilia (síndrome de Marfan)", *Archivos de oftalmología de Buenos Aires*, Volume XII, page 3.
- Marfan, M. A. (1896), "Un cas de déformation congénitale des quatre membres. plus prononcée aux extrémités, caractérisée par l'allongement des os, avec un certain degré d'amincissement", *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, Volume XIII, page 220.
- Méry, H., and Babonneix, L. (1902), "Un cas de déformation congénitale des quatre membres. Hyperchondroplasia", *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, Volume XIX, page 671.
- Mills, R. W. (1917), "Relations of Bodily Habitus to Viscera", *American Journal of Roentgenology*, Volume IV, pages 155, 169.
- Moro, E. (1927), "Ueber die neurologische Form der Arachnodactylie", *Münchener medizinische Wochenschrift*, Volume LXXIV, page 1071.
- Neresheimer, R. (1916), "Ueber Arachnodactylie", *Archiv für Kinderheilkunde*, Volume LXV, page 391.
- Nicolo, C. (1931), "Un caso di ectopia bilaterale della lente con residuo della membrana pupillare", *Bollettino d'oculistica*, Volume X, page 585.
- Noblecourt, P., Cathala, J., and Temerson (1938), "Luxation congénitale bilatérale du cristallin chez un prématuré. Dolichosténomelie", *Bulletins de la Société de pédiatrie de Paris*, Volume XXXVI, page 21.
- Nobel, E. (1919), "Arachnodactylie bei einem 14 jährigen Mädchen", *Wiener medizinische Wochenschrift*, Volume LXIX, page 2266; *Deutsche medizinische Wochenschrift*, Volume XLVI, page 224.
- Ormond, A. W., and Williams, R. G. (1924), "A Case of Arachnodactylia with Special Reference to Ocular Symptoms", *Guy's Hospital Reports*, Volume LXXIV, page 385.

Pandovani (1932), "Arachnodactylia e lussazione congenita del cristallino", *Lettura oftalmologica*, Volume IX, page 296.

Passow, A. (1934), "Okulare Paresen im Symptomenbild des 'Status dysraphicus'", *Münchener medizinische Wochenschrift*, Volume LXXXI, page 1243; (1933), "Hornersyndrome, Heterochromie und Status dysraphicus, ein Symptomenkomplex", *Archiv für Augenheilkunde*, Volume CVII, page 1; "Analogie und Koordination von Symptomen der Arachnodactylie und des Status dysraphicus", *Klinische Monatsblätter für Augenheilkunde*, Volume XCIV, page 102.

Pino, R. H., Cooper, E. L., and Van Wlen, S. (1937), "Arachnodactylia and Status Dysraphicus. A Review", *Annals of Internal Medicine*, Volume X, page 1330.

Piper, R. K., and Irvine-Jones, E. (1926), "Arachnodactylia and Its Association with Congenital Heart Disease", *American Journal of Diseases of Children*, Volume XXXI, page 832.

Poynton, F. J., and Maurice, W. B. (1923), "Arachnodactylia with Organic Heart Disease", *Transactions of the Medical Society of London*, Volume XLV, page 21.

Rados, A. (1942), "Marfan's Syndrome (Arachnodactylia Coupled with Dislocations of the Lens)", *Archives of Ophthalmology*, Volume XXVII, page 477.

Rambar, A. C., and Denenholz, E. J. (1939), "Arachnodactylie bei Geschwistern", *Monatsschrift für Kinderheilkunde*, Volume LXXVIII, page 56; (1939) "Arachnodactylia", *Journal of Pediatrics*, Volume XV, page 844.

Ringelhan, O., and Elsching, A. (1931), "Ueber die Linsendislaktionen", *Archiv für Augenheilkunde*, Volume CIV, page 326.

Roch, M. (1937), "Arachnodactylie (syndrome de Marfan)", *La Presse médicale*, Volume XLV, page 1429.

Rominger, E. (1927), "Ein Fall von Arachnodactylie", *Münchener medizinische Wochenschrift*, Volume LXXIV, page 521.

Salle, V. (1912), "Ueber einen Fall von angeborener abnormer Grösse der Extremitäten mit einem an Akromegalia erinnernden Symptomenkomplex", *Jahrbuch für Kinderheilkunde*, Volume LXXV, page 540.

Scammon, R. E. (1927), "Literature of Growth and Physical Development of Fetus, Infant, and Child; Quantitative Summary", *The Anatomical Record*, Volume XXXV, page 5.

Schilling, V. (1936), "Striae distensae als hypophysäres Symptom bei basophillem Vorderlappadenom (Cushingchem Syndrom) und bei Arachnodactylie (Marfanischem Symptomenkomplex) mit Hypophysentumor", *Die medizinische Welt*, Volume X, page 183.

Schlack, H. (1926), "Zur Kenntnis der Arachnodactylia", *Medizinische Klinik*, Volume XXII, page 845.

Stewart, R. M. (1939), "A Case of Arachnodactylia", *Archives of Disease in Childhood*, Volume XIV, page 64.

Steren, E. (1939), "Dystrophia mesodermalis congenita typus Marfan", *Archives of Ophthalmology*, Volume XXI, page 196.

Stockard, E. R. (1921), "Developmental Rate and Structural Expression of Experimental Study of Twins, 'Double Monsters' and Single Deformities", *American Journal of Anatomy*, Volume XXXVIII, page 115.

Stump, C. W. (1925), "Histogenesis of Bone", *Journal of Anatomy*, Volume LIX, page 136.

Thaden, F. (1929), "Ein fall von Arachnodactylie mit besonderer Berücksichtigung der Augensymptome", *Archiv für Augenheilkunde*, Volume C, page 278.

Thomas, E. (1914), "Ein Fall von Arachnodactylie mit Schwimmhautbildung und einer eigenartigen Ohrmuschel-deformität", *Zeitschrift für Kinderheilkunde*, Volume X, page 109; (1926) "Arachnodactylie mit Ohrmuscheldeformität und Schwimmhautbildung", *Münchener medizinische Wochenschrift*, Volume LXXIII, page 890.

Thursfield, H. (1920), "Arachnodactylia", *Saint Bartholomew's Hospital Reports*, Volume LIII, page 35.

Tikhomirov, P. E. (1935), "Arachnodactylia and Ectopia Lentis", *Sovetskiy vestnik oftalmologii*, Volume VII, page 591.

Ueyeyama, H., Kondo, B., and Kamins, M. (1947), "Arachnodactylia and Cardiovascular Disease. Report of an Autopsied Case with a Summary of Previously Autopsied Cases", *American Heart Journal*, Volume XXXIV, page 580.

Viallefont, H., and Temple, J. (1934), "L'arachnodactylie ou syndrome de Marfan", *Archives d'ophthalmologie*, Volume LI, page 536.

Villard, H., Viallefont, H., and Temple, J. (1934), "L'arachnodactylie et subluxation du cristallin. Observation d'une famille", *Bulletin de la Société d'ophthalmologie de Paris*, July, page 384.

Vogt, A. (1931), "Arachnodactylie (Marfan'scher Symptomenkomplex) mit totaler Linsenluxation", *Zeitschrift für Augenheilkunde*, Volume LXXIV, page 388; *Klinische Monatsblätter für Augenheilkunde*, Volume LXXXVII, page 258.

Von Pfaundler, M. (1914), "Arachnodactylie", *Münchener medizinische Wochenschrift*, Volume LXI, page 280.

Waardenburg, J. (1932), "Das menschliche Auge und seine Erbanlagen", *The Lancet*, Volume II, page 1472.

Weber, P. F. (1933), "Familial Asthenic Type of Thorax with Congenital Ectopia of Lenses, A Condition Allied to Arachnodactylia", *The Lancet*, Volume II, page 1472.

Weill, G. (1932), "Ectopie du cristallin et malformations générales", *Annales d'oculistique*, Volume CLXIV, page 21.

Weve, H. (1931), "Ueber Arachnodactylie (Dystrophia mesodermalis congenita, typus Marfan)", *Archiv für Augenheilkunde*, Volume CIV, page 1.

Young, M. L. (1929), "Arachnodactylia", *Archives of Disease in Childhood*, Volume IV, page 190.

Zuber, A., and Cotenot (1928), "Un cas de dolichodactylie", *Bulletins de la Société de pédiatrie de Paris*, Volume XXV, page 181, and *Nourrisson*, Volume XV, page 292; (1930), *ibidem*, Volume XXVIII, page 286.

Zuber, A., and Cotenot, — (1928), "Un cas de dolichosténomélie", *Bulletins de la Société de pédiatrie de Paris*, Volume XXVI, page 311.

FIBROSIS UTERI AND ITS DIAGNOSIS BY MEANS OF UTERINE SCRAPINGS.

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It is a frequent experience in histopathology to be confronted by sections of uterine scrapings obtained in the performance of diagnostic curettage of the uterus. Quite a number of these scrapings show striking alterations in the architecture of the stroma. Such scrapings are derived from a large group of patients whose general symptoms are lower abdominal pain with excessive or irregular hæmorrhage. The disease process in these cases is *fibrosis uteri*, the term being used in a rather wide sense. The object of the present study has been to trace the course of development of *fibrosis uteri* from its origin to its fully developed state and to correlate the clinical stages of the disease with histological appearances. Special attention has been given to the microscopic structure of the endometrium, as this is the biopsy material most frequently seen. It is believed that the recognition in endometrium of features to be described frequently enables a positive diagnosis of *fibrosis uteri* to be made, together with an estimate of the stage of the disease.

General Considerations.

Fibrosis uteri is a term which seems to have passed into disuse at the present time; nevertheless, it aptly describes the end result of what appear to be two distinct pathological processes. In the first process there are a simple fibrous replacement and general shrinkage of the muscular tissue and atrophy of the endometrium; this is seen in post-menopausal or senile involution. It is symptomless and of no importance clinically apart from such unusual developments as stenosis of the cervix leading to pyometra. In the second process *fibrosis uteri* develops as an active and proliferative process during an age period when the uterus is functional. The clinical history and histopathological findings strongly support the view that this second type is a reaction to infection. It has a characteristic course and symptomatology and is certainly clinically important. The disease process involves cervix, uterus and uterine tubes to a more or less similar degree. The ovaries are probably involved as well, but the microscopic changes in them are not so distinctive as in the other structures. The condition leads to many of the hysterectomies which are necessary in gynaecological practice. The term *fibrosis uteri* can be used conveniently to include the reactive stages leading up to the final stage of litoral fibrosis. This article is concerned only with the *fibrosis uteri* produced as a result of proliferative activity.

Conclusions as to the sequence of events in this proliferative type of *fibrosis uteri* have been reached by piecing together of the clinical and pathological pictures observed in many cases in the past twelve years. During this time upwards of 1100 specimens of uterine scrapings and 600 specimens obtained by hysterectomy have been at our disposal. This material does not include specimens removed on account of carcinoma, *metropathia hæmorrhagica* or recent abortion. In some instances it has been possible to study serial biopsy specimens in the same patient.

Infective Origin.

Clinical reasons for suspecting *fibrosis uteri* to be infective in origin are as follows.

1. Frequently the occurrence of miscarriage or delivery followed by purulent vaginal discharge is an initiating

episode. Such episodes may be repeated, and there may even be febrile illness at the time. One can readily believe that infection may gain a foothold at such times.

2. Clearly infective elements are present in the symptom complex—namely, cervicitis and salpingitis. Acute or subacute episodes may occur during the course of the chronic illness. Furthermore, various pathogenic organisms—namely, pneumococci, streptococci and staphylococci—have been grown from endometrial scrapings or uterine tubes in such cases at different times. Unidentified small Gram-negative bacilli have also been obtained on some occasions. The gonococcus is a well known pathogen in this field, and its ability to damage the pelvic viscera is well known. It would seem that infection by any one of a number of pathogenic organisms can lead to *fibrosis uteri*—in other words, *fibrosis uteri* is a reaction to non-specific infection.

Clinical Features.

An idealized clinical picture at the time when surgical intervention becomes necessary is as follows, although naturally there may be considerable variation in the symptoms troubling the patient. The subject is a woman, aged about thirty-five years, and gives a history of previous miscarriage or delivery followed by purulent vaginal discharge. Lower abdominal pain is present in both iliac fossae, of a dull aching character, with occasional acute exacerbations. There may also be discomfort in the rectum. Frequency of micturition may be present without pyuria. Menstrual bleeding is excessive and the cycle may be disturbed or unusual. Leucorrhœa may be present. On examination of the patient, obvious cervicitis is present; the uterus is bulky and globular in outline and somewhat tender. There are thickening and tenderness in the lateral fornices. On gross examination of the hysterectomy specimen from such a subject the presence of cervicitis can be noted again; the body of the uterus is mottled, globular and bulky. The Fallopian tubes are greatly thickened and of a whip-cord consistence. The fimbriae are thickened and shortened and tend to occlude the ostium. Sometimes retort-shaped dilatation is present. No special features are noted in the ovaries, but they may be cystic. Varicose veins may be prominent in the broad ligament. If the condition develops later or more slowly the excessive bleeding may be abolished by the natural process of the menopause and no treatment may ever be called for. At times the condition is gross very early in life. Instances have occurred of severe menorrhagia and gross *fibrosis uteri* in persons aged twenty years. In such cases one may wonder how there could be time for the process to become so gross so early, and what may be its origin. However, non-specific vaginitis in children is certainly not unknown, and infection may have occurred at this time. There is no reason to suppose that a slow infective process must always be initiated by an acute phase. The tenderness of the uterus and Fallopian tubes is most readily explained by the chronic inflammatory processes present in them, and the continuous dull ache seems explained by the varicose veins in the broad ligament. Adhesions are not infrequent. Excessive bleeding is no doubt related to the structural changes in the vessels of the endometrium, to be described later. Cervicitis may exist as an isolated lesion; but when it is gonococcal in origin or occurs after parturition, changes in the uterus and tubes are usually present as well. The uterus is characteristically globular in outline and is at first bulky, but it gradually becomes smaller in size in the later stages of the disease although the globular outline is retained.

Pathological Features.

The development of the disease is conveniently divided into the conventional stages of acute, subacute and chronic inflammation. Broadly, these stages are respectively characterized histologically by infiltration of wandering cells, by proliferation of the various tissue elements and by fibrous replacement of tissues. In the acute stage naked-eye examination of the endometrium shows it to be hæmorrhagic and soft. On microscopic examination the stroma is seen to be infiltrated by polymorphonuclear cells, plasma cells and sometimes small round cells as well.

There are pronounced hyperæmia and swelling of the endothelial cells lining the capillaries. A light infiltrate of polymorphonuclear cells is not unusual as a premenstrual phenomenon and should not be confused with this inflammatory infiltrate. Similarly, the profuse infiltration of polymorphonuclear cells associated with the retained products of conception has not quite the same significance as the polymorphonuclear infiltration in the absence of such products. Furthermore, swelling of the capillary endothelium may be seen as a premenstrual phenomenon. True acute endometritis is typically seen as a result of gonococcal infection, but infection by other organisms can produce a similar picture. Concomitant cervicitis and salpingitis are the rule, but probably myometrial changes are not much in evidence at this stage. The changes described in the endometrium involve the stroma particularly, and the appearance of the endometrial glands still depends upon hormonal control, although there may be some modification due to the inflammatory process.

In the subacute stage a greater variety of appearances may be noted. To the naked eye the endometrium appears thick and white and may even be polypoidal, although of course hæmorrhage occurs at the time of menstruation. The diffuse infiltration of polymorphonuclear and plasma cells noted microscopically in the first stage has disappeared, although a few of these may still remain. Thickening of the endometrium is due to proliferation of the stromal cells, which tend to be plump, and to the fact that desquamation of the endometrium does not appear to be so complete at menstruation as it is normally. In the stroma one typically finds dense and clear-cut focal accumulations of small round cells. These accumulations never seem to have germinal centres. The endothelium of the capillaries and arteries is still swollen, and in addition the arterial walls seem to be thickened by reason of hypertrophy of their muscular coat. Frequently in histological section these thickened arterial walls are seen in groups, owing to the spiral structure of the endometrial arteries. Often there is some irritative hyperplasia of the glandular epithelium leading to the so-called inversion of the glands. Another common feature is pronounced catarrhal desquamation of the glandular epithelium, and this, no doubt, is one source of the leucorrhœal discharge derived from the uterus. In the premenstrual phase there is not infrequently a condensation of decidua-like stroma about the walls of blood vessels. This should not be confused with thickening of the arterial walls due to the hyperplasia of the muscle fibres as described. Similarly, true decidua may be condensed about the walls of blood vessels and has no more significance than the previously mentioned condensation. Usually towards the later part of the subacute phase the normally linear junction of endometrium and myometrium becomes irregular. This is due to two developments. Firstly, there is an irritative invasion of the myometrium by endometrial glands and stroma. This invasion is analogous to the formation of sinuses of Rokitsansky in the gall-bladder in chronic cholecystitis and is not a neoplastic process. At times these areas of invasion can be large. Secondly, connective tissue investments of the spiral arteries are apt to extend into the endometrium. Such irregular processes are often removed during curettage and should not be mistaken in histological sections for portions of a fibroid tumour. The development of cervicitis continues during this subacute stage, and erosion is seen and Nabothian follicles may become prominent. The development of salpingitis continues. It is at this stage that the uterus tends to become bulky and globular, owing to hypertrophy and often oedema of the muscular elements. In addition, there is an interfascicular proliferation of fibro-cellular tissue. As in the acute stage the changes in the endometrium are essentially interstitial. The glands are as before under hormonal control, but the inflammatory irritation tends to bring about a more hyperplastic state than would be expected from the time of the menstrual cycle.

In the chronic stage the picture of fibrosis is more fully developed and is accompanied by some degree of general shrinkage. At this stage the endometrium is rather thinned, and on microscopic examination the

stromal cells are seen to be small. There may be patches of rather fibrous endometrial stroma. Lymphocytic foci may still be present in the stroma. The walls of the spiral arteries are thicker than in the preceding stage and have undergone fibrous transformation, presenting the appearance of concentric fibrosis. The thought of bleeding from such an artery after menstrual necrosis reminds one of what can be done by an eroded and fibrotic artery in the floor of a peptic ulcer. The glands tend to be somewhat atrophic and rather lag in their appearance behind the stage of development one would expect from the time of the menstrual cycle. The irregular myometrial junction with irritative invasion of the myometrium by endometrial elements is still well seen, perhaps to a greater degree, as also are the tongues of fibrous tissue investing the spiral arteries and extending further up into the endometrium towards its surface. The muscle fibres of the myometrium are becoming smaller and more fibrotic concomitantly with the transformation of the interfascicular fibro-cellular tissue into more densely fibrous tissue. In this way the uterus shrinks in its overall size although the globular contour is retained. Pronounced chronic cervicitis is in evidence, and the uterine tubes have a whip-cord feeling on palpation, as they are densely fibrotic by reason of the chronic inflammation present in them. Sometimes at this stage the endometrial features of *metropathia hæmorrhagica* may be seen, often associated with cystic changes in the ovary. This development may modify the clinical picture somewhat. It is possible that the occurrence of *metropathia hæmorrhagica* at this stage of *fibrosis uteri* may be due to the inflammatory processes involving the ovaries and disturbing their function. In this chronic stage also hæmatosalpinx is not rare, and blood may leak into the peritoneal cavity. Clinically the condition may be indistinguishable from tubal ectopic pregnancy and its rupture. Seemingly this type of hæmatosalpinx is to be ascribed to the diseased condition of the Fallopian tubes, for no evidence of ectopic pregnancy is found on histological examination.

Elastic tissue is not uncommonly seen surrounding arteries in the myometrium. Such appearances are indicative of multiparity, and although they occur in *fibrosis uteri* they do so only because of the process of involution.

The histological stages are illustrated to some extent by the illustrations. Figure I is a high-power view of endometrium during the acute stage. In it the stroma can be seen to be heavily infiltrated by polymorphonuclear cells, small round cells and plasma cells. In Figure II can be seen a well defined focal accumulation of small round cells such as occurs in the subacute stage. Figure III also shows one of the appearances of the subacute stage, in which the epithelium of the glands is undergoing disintegration and a good deal of debris can be seen which has been extruded into the lumen of the uterus. In Figure IV can be seen a spiral artery which has been cut across at many points. It shows some hyperplastic thickening of the muscular coat of the artery. Figure V shows the irregular junction between endometrium and myometrium due to the irritative invasion of the myometrium by the endometrial elements. Figure VI shows a spiral artery in the chronic and fibrotic stage. The walls of the artery are greatly thickened and fibrous.

Technical Considerations.

In seeking for the histological features described in this article, it is essential to obtain and examine as large an amount of uterine scrapings as possible owing to the patchy nature of the lesions. In securing the uterine scrapings the technique used has been to bring the scrapings with the curette on to a piece of gauze, removing the endometrium all around the uterus. The scrapings are then picked with forceps on to a second piece of gauze to free them from blood. They are wrapped in this piece of gauze and dropped into fixative solution. It is also necessary to control the staining technique fairly carefully, otherwise it may not be easy to notice patchy fibrosis and the fibrous change in the walls of the spiral arteries showing concentric fibrosis. Hematoxylin and eosin have proved perfectly satisfactory, but it is essential that a correctly chosen balance of the two stains is maintained. Another point is that if a previous curettage has

been performed recently, the newly regenerated endometrium may not contain the characteristic features. This comment applies particularly to vessels showing concentric fibrosis, lymphocytic foci or endometrial glands with catarrhal desquamation. It seems likely that the removal of such fibrotic arteries may explain temporary cures produced by curettage.

Clinical Points.

Fibroid tumours, being rather common, not infrequently complicate *fibrosis uteri*. If the fibroid tumour is intramural or subserous, it is far more likely that hæmorrhage is due to concomitant *fibrosis uteri*. A submucous fibroid tumour may, of course, cause hæmorrhage, in which case the endometrium is thinned and eroded. Similarly it may be noted that a uterus tender by reason of the subacute stage of *fibrosis uteri* may be retroverted. Although the position of the uterus may be rectified by operative means, its tenderness will not be removed. Neither will the removal of uterine tubes affected by salpingitis cure such uterine tenderness. The adhesions mentioned earlier may be of some surgical importance in the performance of hysterectomy for *fibrosis uteri*.

Summary.

The supposed stages in the development of *fibrosis uteri* have been described both from the clinical point of view and also from the point of view of morbid anatomy. An attempt has been made to correlate the anatomical stages with the clinical phenomena. The histological examination of the uterine scrapings is valuable in the recognition of the stages of the disease and thus in the long-term management of gynecological disability due to this cause.

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THE PSYCHONEUROTIC IN INDUSTRY.¹

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THE introduction of the topic of the psychoneurotic in industry is justified by reason of the need to make the best use of all available manpower, to say nothing of more humanitarian motives towards the contentment and mental well-being of those who are engaged in industry. For present purposes the term psychoneurosis will be held to cover all forms of emotional instability and other symptoms referable to unsatisfactory personal relationships, whether or no these can be given a more precise nomenclature. Industry will be regarded as synonymous with employment in a working group. The problems raised are of course not peculiar to the factory or workshop, but appear also, perhaps in a somewhat different guise, in service in the armed forces and even in the domestic sphere. They are problems connected with management and subordination. Certain stages can be noted in the effort to bring about improvement in working conditions. First of all there is improvement in the physical conditions under which people work, such as lighting, aeration, lay-out of the factory, labour-saving devices, conservation and economy of movement, and provision of amenities such as canteens, first-aid and rest rooms and other premises, and of recreational facilities, adequate rest periods and reduction in the number of working hours. Secondly there are the more scientific selection of the worker and placement in his job and more careful job analysis. In the third place—and this is a matter to which most earnest consideration is being given in many quarters—there is the improvement in interpersonal relationships, in part fostered by better factory hygiene and vocational selection, but to a greater extent by attention to the individual worker and his place in the organization.

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on October 27, 1949.

Collier (1940) refers to the science of human relations as being one of the most important branches of industrial psychology. Our economy is still suffering from the bitter strife between capital and labour which blazed out during the dreadful years of exploitation of a century ago in England, and to which fuel was added, at any rate in certain industries, during the economic depression which preceded the second world war. The problem of the psychoneurotic in industry cannot therefore be divorced entirely from political and sectional considerations, though the eradication of prejudices and psychological complexes which militate against harmony in industry may very well be assisted by the medical profession. Nothing should be overlooked or lightly dismissed that can reasonably be expected to reduce accidents and disease and to improve the physical and mental well-being of workers whose ability to help and look after themselves may be limited.

Placement.

Intelligence and aptitude tests are of great value in vocational placement, especially for young persons, provided that the temperament and inclinations of the worker are taken into consideration. At the same time practical tests of temperament still remain to be devised, so that the placement of a supposed psychoneurotic remains largely experimental, and his behaviour under any particular set of circumstances can only be guessed at. So it comes about that latent weaknesses and predispositions become manifest inadequacies only after some special experience such as battle stress or accident.

With free labour the worker tends to find his own level and niche. Certain organizations may insist on a preliminary medical examination, which will include a survey of the worker's personality, and signs of nervous instability will then call for further inquiry. More often the employer, personnel officer or foreman will select and place the worker more or less by trial and error. The psychoneurotic and social misfit whom it is desired to employ for some special reason, maybe on account of special ability or skill, will need careful induction into the working team and subsequent supervision. Lloyd Davis (1948) has pointed out that modification of the job is often possible and proves more satisfactory than trying to reconcile the worker to a task which he regards as uncongenial. This is in accordance with the common experience that it is usually easier to change or alter the environment (physical or psychological) for a psychoneurotic than to modify his attitude. The mode of induction and the provision of instruction and training are of special importance in the case of juveniles who are starting out on their first employment, and thereafter whenever the worker is being introduced to new or special conditions. In regard to accidents, which are liable to affect the morale of the workshop, it is interesting to note that the United States Bureau of Labor reported on a survey in 1924 in which it was found that in employments involving a risk of physical injury 81% of accidents occurred on the first day of employment and another 15% during the first week.

Incidence of Neurosis.

The incidence of neurosis amongst workers is hard to estimate, since we lack any clear and generally accepted standard or criterion of neurosis, and stresses vary enormously in different industries. It has been suggested that the incidence of neurosis is higher, especially after injury, in the more dangerous occupations, where it is understandable that there may be a fear of return to the risk of further injury.

Millais Culpin (1930) and his assistants found that among 1000 workers in various occupations, symptoms of nervous instability of a degree which interfered to some extent with behaviour, efficiency or happiness were found in from 40% to 60% in different occupations, while up to 10% presented symptoms of a nature and severity equal to those for which patients sought treatment at hospitals and clinics. Although the conditions were abnormal, in that many of the subjects observed were working for long hours—up to seventy-five or more per week—and all suffered the stress and strain of exposure to enemy action

and of disruption of civilian life, it appears reasonable to suppose that some of the factors to which Fraser (1947) and his co-workers have called attention may play a significant part in the production or aggravation of psychoneurosis in workers under peacetime conditions. It should be mentioned that the research was carried out in engineering industries in which large numbers of men and women were employed in the various factories visited. The findings relevant to the subject of the present discussion were as follows. Over 25% of all absences from work due to sickness were on account of nervous disability. Of the workers examined under a scheme designed to exclude any special selection, 10% suffered from a disabling neurosis during the six months period of the investigation. Neurosis was as frequent amongst those on the more skilled as on the less skilled jobs, and there was no significant difference in the incidence amongst those with the highest and those with the lower rates of earning. Those with fixity of habits, who had shown little disposition to change their mode of life, had a higher incidence of neurosis than those who had shown themselves to be adaptable and persistent in the face of difficulties. There was a higher incidence of physical illnesses amongst the less intelligent. The following conditions are mentioned in the report as being associated with more than the usual incidence of neurosis.

A. Related to work:

1. Employment for more than seventy-five hours per week.
2. Work found boring or uncongenial.
3. Very light or sedentary work.
4. Work calling for skill inappropriate to the worker's intelligence.
5. Assembly, bench, inspection and toolroom employment.
6. Work requiring constant attention, especially if giving little scope for initiative or technical responsibility.
7. Work programmes offering little variety.
8. Tasks for which lighting was unsatisfactory.

B. Related to domestic conditions:

1. Taking least adequate diets.
2. Widowhood, separation, and amongst the women marriage with full or partial home duties.
3. Considerable abnormal responsibilities and stress.
4. Restricted social contacts, recreations or leisure interests. This was found to be the most common single factor and no doubt most closely dependent upon psychological make-up.

Every individual needs to belong to a group, and even the most individualistic have a sense of attachment to other human beings, even though it is only for the purpose of feeling superior to others. The majority of human beings like to feel that they count in some social group. There is a growing conception of the team in factory organization, prompted in part by the drive for greater efficiency, but not altogether uninfluenced by emotional needs. The division between employers and employees is being replaced by a conception of a hierarchy of functions, with workers with different grades of skill, supervisors, foremen, managers and directors, in an ascending scale, but without the somewhat rigid system of graded ranks of a military formation. Increasing recognition is being given to the importance of management for the smooth and efficient running of a factory, since harmonious social relationships within the factory are regarded as quite as worthy of attainment as satisfactory physical working conditions.

Blacker (1946) suggests that one of the most important questions to be asked in an inquiry about neurosis amongst workers is: "Are all the foremen selected as much for their ability to handle the human as well as the production machine?" The way supervision and management are exercised will determine in no small part whether or no the factory is to be regarded as a "happy ship".

Ling (1936) refers to an experiment on a group employed in repetitive work, in which it was found that in spite of a variety of environmental changes, including lengthening and shortening hours of work, and introduction and removal of rest pauses, there was a rise in output. The investigation arrived at the conclusion that "the relationship between first-line supervision and the individual workman is of more importance in determining the atti-

tude, morale, general happiness and efficiency of the employee than any other single factor".

Lewis (1946) has pointed out that psychoneurotics, with their limited capacities for social adjustment, are the first to exhibit distress in an unhappy atmosphere. "They are the barometers whereby the doctor and personnel officer can learn what danger spots are about, making the workshop oppressive."

Special Types.

The true psychoneurotic usually gives a history of difficulties in adjustment and excessive emotionality, which dates back perhaps even to childhood, and his disabilities become aggravated under a variety of conditions. He tries to do his best, in contrast to the "workshy" individual, who is shiftless and amoral and has a consistently poor occupational record.

Anxiety may be held to cover a wide range of emotional upsets and tensions and dissatisfactions. The anxiety psychoneurotic is the person who meets his difficulties by emotion rather than by a useful and satisfactory line of action. He is often, of course, hereditarily predisposed, and when he comes under notice as an adult the anxiety type of reaction has usually become deeply ingrained. It is suggested that the years of economic insecurity and depression with their impact on domestic life, productive of a sense of frustration, and more recently the disrupted family relationships occasioned by war, have left an aftermath of emotional instability. Without elaboration of the symptomatology of the anxiety reaction, the main conditions which a worker of this type is likely to present are psychosomatic disorders based on overactive visceral mechanisms, fatigue and even deterioration in general health after a lengthy period of disturbed sleep and impaired appetite. Persons of tense emotional type are predisposed to peptic ulcer when there are additional factors of a faulty routine of eating *plus* strain, and to skin complaints when they are exposed to such physical agents as irritants and infections.

The psychoneurotic shows a poor capacity for adaptation to change involved in shift work, and if he is a light sleeper is apt to find difficulty in settling down to varying times of going to bed. The change over from day to night shifts imposes a special strain on some, who may take a week or two to become accustomed to the new routine. Sometimes a prolonged period on night work proves less disturbing than shorter spells, such as one week in three. Other workers may prefer a lengthy unbroken period of night work, but show evidence of exhaustion after a time. It is, of course, important to make sure that the worker has, and that he makes use of, the conditions for adequate sleep during the day.

For those of an anxious disposition inferior factory hygiene, responsibility and interpersonal difficulties constitute greater stresses than for the more stable worker.

Incentive payments seem unwise for the genuine psychoneurotic, since they offer a threat to his feeling of security, and may well intensify a sense of inferiority and foster irritability and resentment.

In evaluating the various conditions which appear to have a bearing on the occurrence of a psychoneurotic state, such as causes suggested by the worker and influences observed by others, the worker's habits in regard to alcohol, the ways in which he uses his leisure, including remunerative employment apart from his official occupation, and the possibility of domestic stresses, all need consideration.

The obsessional individual suffers and makes others suffer by reason of his rigid, exacting, over-precise and over-conscientious attitude. Many of his symptoms are to be understood as self-imposed penalties for his own shortcomings; his inadequacies are over-compensated by his excessive devotion to rule and detail. He often excels in precision work and in the keeping of accurate and detailed records, and he loves to work to a system, especially of his own devising. He is an individualist and may be a very valuable workman, provided that he does not need to fit in with the process of a team. The obsessional manager or foreman tends to be interfering and exacting, demands to be informed about every detail, and is un-

willing to delegate responsibility. The team under him is seldom happy.

Depressive states lead to decreasing efficiency, and the downward course may be somewhat prolonged, in which case the correct diagnosis may be arrived at only when treatment for supposed exhaustion, anaemia, dyspepsia and other somatic complaints is not followed by improvement. The condition may occur in people of a cyclothymic constitution, and the depressive phase is ascribed to "overwork", which has really been the manifestation of a manic swing. The longitudinal history will then reveal the recurring cycles of over-activity and under-activity. Within certain limits hypomania may prove quite an asset, provided that intolerance of the relative shortcomings of others and irritability do not interfere with interpersonal relationships.

Schizophrenia deserves brief mention, from the aspect of lack of reliability and of drive, impaired concentration and oddness. Definite psychotic features may be absent, and suspicion about the condition will need confirmation by an adequate psychiatric history. Since the introduction of "active" methods of treatment, numbers of schizophrenics are being returned to their homes with varying degrees of remission, and placement in employment, which is so desirable from a therapeutic standpoint, will often prove difficult.

The elderly worker, aged sixty years and over, is apt to show some reduction in speed, and may have to drop out of moving belt and chain work, but will often retain skills which he can exercise at his own pace. He becomes more prone to accident, and for reasons both physical and psychological may be slower to recover after illness or injury. He is prone also to develop a "promotion neurosis" if he struggles beyond his capacity to undertake greater responsibility and when he sees younger men promoted over his head.

Mental subnormality may properly be included in this review, since the dullard is prone to exhibit emotional instability in the face of stress. He comes under notice for a variety of petty somatic symptoms, which tend to persist so long as the causes for unhappiness and discontent continue to operate. More pronounced somatic as well as mental symptoms may develop by a process of hysterical conversion, when escape into assumed illness provides at least for a time a satisfying solution for a maladjustment. Compensation neurosis is more common amongst the intellectually subnormal than amongst the normal, especially when the nature of the employment involves some risk of injury. The subnormal individual has often been the only dullard in his family, so that he has grown up with a strong sense of inferiority at home and at school, and has carried into his employment the feeling of being misunderstood and imposed upon. He tends to be much on the defensive and is prone to develop a paranoid outlook. Now, while subnormal persons with stable temperaments may find their own levels in industry, and while they are able to follow the less exacting and humbler occupations with reasonable satisfaction, those who are emotional are more in need of doses of reassurance from time to time, and of tolerance and sympathy from those in authority over them. While intellectual subnormality will be revealed in the application of intelligence and aptitude tests, the higher grade ament with a mental age of ten or twelve years, who is a glib talker and displays an alert manner, may escape detection until the causes of his inefficiency and lack of reliability are examined more closely. His history will reveal an indifferent or poor school record and unsatisfactory employment, with frequent changes of job. The defective tends to exaggerate his aptitudes in order to preserve his self-esteem: the "cook" will usually turn out to have been a scullion, and the man who claims to have had charge of or supervision over several others, their assistant or "useful".

Special Industrial Neurosis Centres.

Two organizations in England are of interest in the present connexion.

1. An industrial neurosis unit of about a hundred beds exists in the Sutton Emergency Centre, for neurotics and

misfits in industry—men and women whom it has not been found possible to place with any satisfaction or in continued employment. The patient is subjected to a psychological examination for the determination of his general ability and special aptitudes, and his home and other environmental conditions are investigated by a social worker when this is thought desirable. The unit has a variety of trade shops where groups of about ten patients can be given some instruction in a trade, and those who are likely to benefit can be transferred to another centre for more intensive training for a trade. A comprehensive mechanism for placement in employment and follow-up investigation is an integral part of the scheme. Appropriate treatment, physical or mental, is given to the patient before or during the training stage.

2. Roffey Park, with 125 beds, was established by a group of about 180 firms for the treatment of their psychoneurotic industrial casualties. The general procedure and the facilities provided are much the same as those at Sutton, but the situation and buildings are infinitely more attractive. In both centres the turnover of patients is large, since the usual duration of stay is under six weeks. A special feature of the Roffey Park activities is an extensive educational programme in industrial hygiene and social relationships for medical officers, managers, supervisors, psychologists, social workers and others. A hostel is available for those who wish to live in while attending courses in the training and research department at Roffey Park Rehabilitation Centre.

The desirability of special industrial neurosis hospitals is at least open to question. Here in Sydney a considerable proportion of patients in Broughton Hall Psychiatric Clinic are workers in industry, while the Commonwealth Department of Social Services undertakes psychological testing and vocational training as well as providing in its own rehabilitation centres physical training and occupational therapy.

Conclusion.

The use of electricity has done much to render factories cleaner and quieter, and since it can readily be distributed it has rendered easy the establishment of small units. Of 366,000 employees in New South Wales, 133,000 work in establishments with an average of up to 50 workers, and of this number 76,000 are employed in factories with not more than 20 workers.

In small factories there is more likely to be close contact between all the different levels of human organization, from the management to the worker. On the other hand, in the small factory employing not more than twenty workers it is difficult to provide some of the facilities and amenities of a larger organization. The worker who is diseased or ill at ease will be advised to or will on his own initiative see the doctor of his choice, who may be handicapped in planning his treatment through a lack of knowledge of working conditions. This difficulty might be met by the establishment of special clinics in factory areas attended by doctors with some special knowledge of industry. These clinics would have a close liaison with welfare officers, social workers and other non-medical personnel concerned with staff problems and management as well as with factory hygiene. The clinics would be essentially diagnostic in function, and when it was decided that the worker needed treatment which could be carried out by his own doctor, he would be advised accordingly. Treatments for special physical or psychological disabilities might, of course, call for reference to a specialist.

Fears of a too grandmotherly régime are, I submit, exaggerated. Criticism from mates is likely to discourage too much demand for advice and help from welfare officers, medical officers and others during working hours. On the other hand, the persistent absentee on account of psychoneurotic disability should be dealt with thoroughly and actively, if necessary in a hospital, or by attendance at a rehabilitation centre. He should not be permitted to drift along on medicinal or other placebos. The undisciplined, the troublemakers and even industrial delinquents such as pilferers might well be referred for medical examination, with benefit to the community as well as to the factory and ultimately to themselves.

One of the greatest forces which can be used to bring about more security in a community suffering from a multitude of social ills lies in the prestige of a learned profession such as ours, provided that it remains independent and prepared to seek the truth and to act accordingly. So can the doctor, industrial medical officer or private practitioner, performing unofficially the duties of an arbitrator and adviser in his purely professional relationships with his patients, give a practical example of disinterested, unbiased handling of strained interpersonal relationships, which may have far-reaching effects like "the little leaven which leaveneth the whole lump".

Bibliography.

- Blacker, C. P. (1946), "Neurosis and Mental Health Services".
 Collier, H. E. (1940), "Outlines of Industrial Medical Practice".
 Culpin, M., and Smith, M. (1930), "Reports on Industrial Health", Research Board Publication Number 61; quoted in the British Medical Association Committee's report on mental health (1941).
 Davies, T. A. Lloyd (1948), "Practice of Industrial Medicine".
 Fraser, R. (1947), "Incidence of Neurosis Among Factory Workers".
 Lewis, A. (1945), cited in "Report on Rehabilitation by a Special Committee of the B.M.A." (1946), *British Medical Journal*, Volume I, Supplement, page 197.
 Ling, T. M. (1936), "The Abnormal and Temperamental Worker", *British Medical Journal*, Volume II, page 1020.

PSYCHONEUROSIS IN INDUSTRY.¹

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 Sydney.

In the British Medical Association national health service publication there is only one mention of psychiatric disease. Every general practitioner knows that nearly 50% of patients suffer from some degree of psychoneurotic or psychosomatic disability. This type of disorder is perhaps peculiar to civilization. The sum total of psychological illness of the individual and group components of society is an indication of the sickness of that society. We are living in a sick society, and the problem must be faced by both medicine and industry. In its entirety the problem is that of the future of civilization as we know it. I hope to indicate the extent of the problem, and I will attempt to trace some of the reasons for the tremendous incidence of psychological ill-health. Because this is a group rather than an individual problem I propose to treat it as such, from the point of view of sociological medicine.

Modern society is characterized by its mass-production methods. It would not be what it is without its industry. Consequently, the question of psychoneurosis in industry is inextricably bound up with that of psychoneurosis in modern industrialized society. Approximately 65% of males and 25% of females in Australia are engaged in some type of industry.

A society is a group of individuals related by common psychological bonds, or emotional interests, by virtue of which they are enabled to live or work together. The common psychological bonds between its members provide the group with the coherence necessary to enable it to function socially, and thus produce its particular variety of "social goods".

A group which is able to produce and reproduce (that is, to maintain and increase) its "social goods" is attractive and integrated (that is, socially healthy), and its members reflect its social health by being emotionally integrated (that is, psychologically healthy). If, however, the psychological bonds of a community become weakened, whether as a result of causes from without or within, the group loses its coherence, becomes repellent, suffers dispersal and ceases to be able to fulfil its particular social function; that is, it no longer produces "social goods" but "social evils". Such a group may be described as disintegrated, or as a sick community or society, and its members

¹Read at a meeting of the New South Wales Branch of the British Medical Association on October 27, 1949.

ILLUSTRATIONS TO THE ARTICLE BY PROFESSOR C. G. LAMBIE, DR. K. E. SHELLSHEAR AND DR. J. L. SHELLSHEAR.



FIGURE VII.—Skiagram of the pelvis and hip joints of M.F., aged seventeen years.



FIGURE IX.—Skiagram of the right shoulder and right side of the chest in M.F.



FIGURE VIII.—Skiagram of the pelvis and hip joints of a normal girl, aged seventeen years.



FIGURE X.—Skiagram of the right shoulder and right side of the chest of the normal control.

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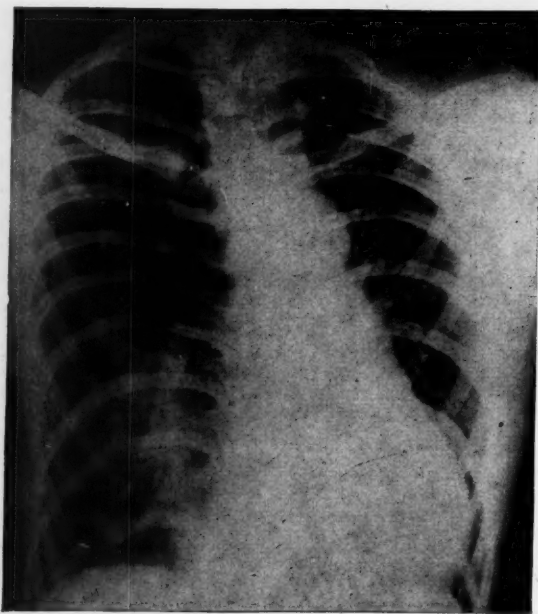


FIGURE XI.—Skiagram of the chest of M.F.

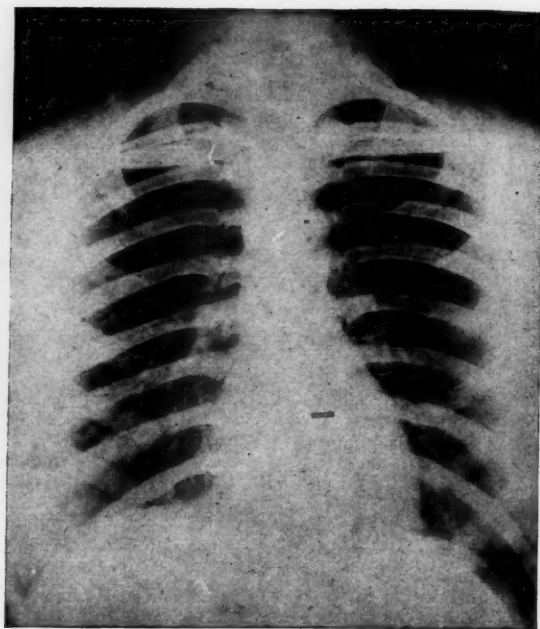


FIGURE XII.—Skiagram of the chest of the normal control.

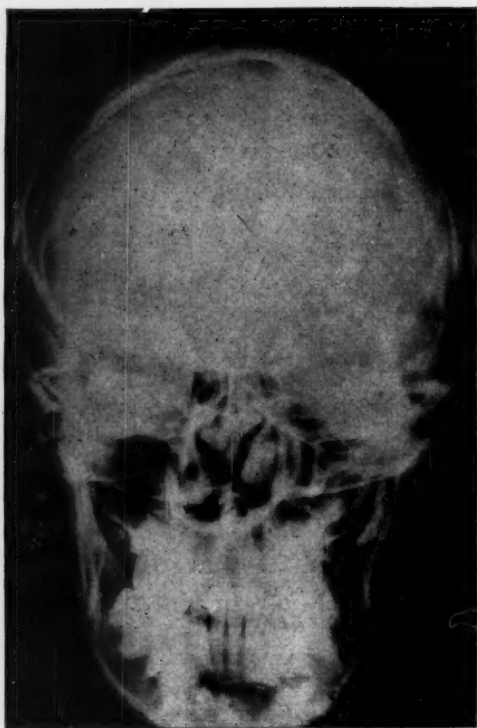


FIGURE XIII.—Postero-anterior skiagram of the skull of M.F.

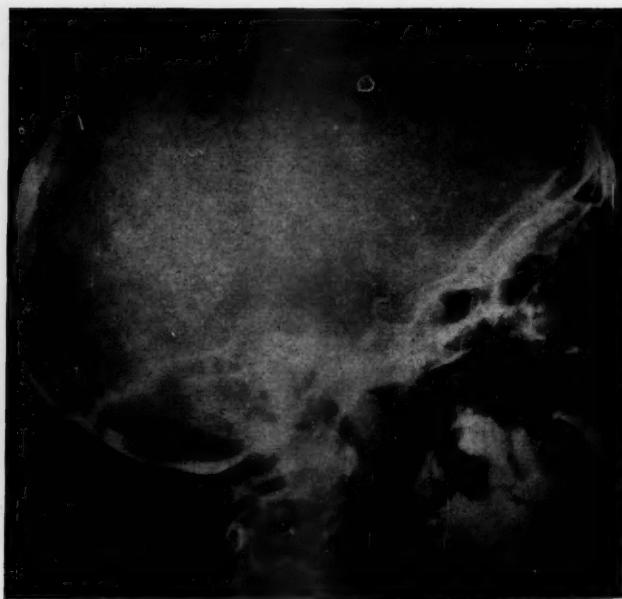


FIGURE XIV.—Lateral skiagram of the skull of M.F.

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FIGURE XVI.—Lateral skiagram of the skull of the normal control.



FIGURE XVII.—Skiagram of the chest of L.McB.



FIGURE XV.—Postero-anterior skiagram of the skull of the normal control.



FIGURE XVIII.—Postero-anterior skiagram of the skull of L.McB.



FIGURE XIX.—Lateral view of the skull of L.McB.

ILLUSTRATIONS TO THE ARTICLE BY DR. W. L. NICKSON AND DR. J. R. S. DOUGLAS.

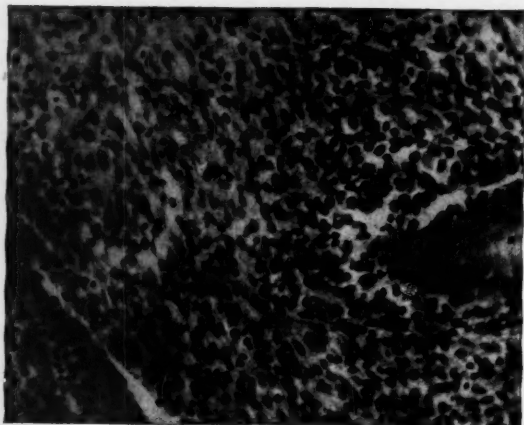


FIGURE I.

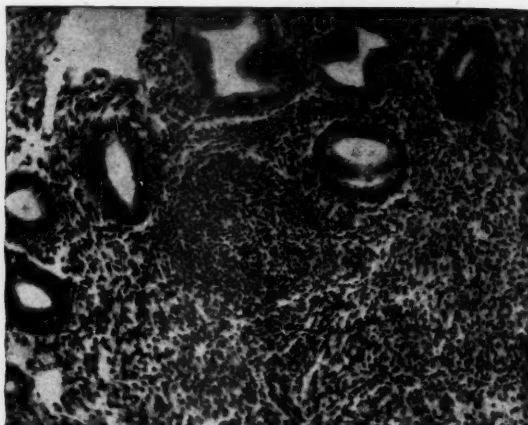


FIGURE II.



FIGURE III.

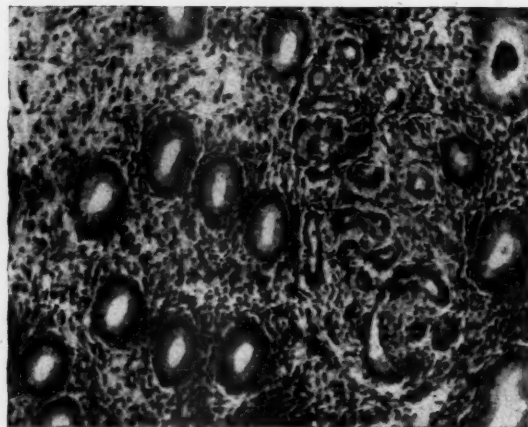


FIGURE IV.

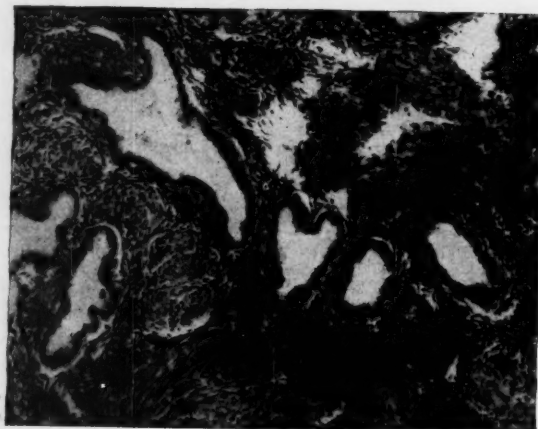


FIGURE V.

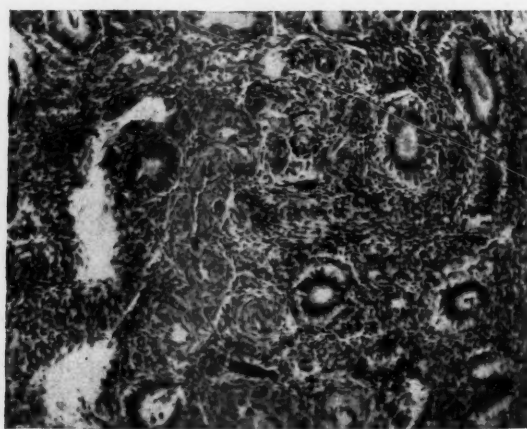


FIGURE VI.

reflect its social ill-health by being emotionally disintegrated (that is, psychologically unhealthy).

Indications of psycho-social sickness are declining fertility, increasing incidence of psychosomatic affections, loss of distinction of psychological sexual characteristics, and increasing rate of these affections in lower age groups; increasing sickness rates in industry, absenteeism, unemployment, strikes and lockouts, and a decrease in output per worker; criminal and antisocial tendencies—increased juvenile delinquency and suicide rates; social fragmentation, such as class war and the revival of regional nationalism, the emergence of "leadership for destruction", mass emigration in the early stages, later being replaced by diminishing emigration associated with an increase in dependent helplessness and in obsessional "stay-putness"; increase in manifestations of the primitive and visceral, including "sex", increasing "intellectualism" and obsessional planning, decline of vital "religious" faith—that is, loss of a sense of origins, purpose in life, and cosmic destiny, and an increase in "escapism" as in mass gambling, show-going *et cetera*.

Individual indications are an increase, especially in the lower age groups, of such diseases as anxiety states, occupational neuroses, neurasthenia, and especially the psychosomatic disorders, which include some cardio-vascular conditions, hyperplegia, hyperthyroidism, nervous dyspepsia and peptic ulcer, gastritis, "D.A.H.", fibrositis and rheumatism, neurodermatosis, debility, anaemia and industrial fatigue, asthma, diabetes, various allergic reactions and accident-proneness.

Generally speaking, this psychological ill-health may be blamed on continued tension, anxiety, chronic fear and frustration.

Our present state of culture has been accompanied by comparatively rapid environmental changes in the course of a small number of generations, in contrast with the culture of primitive races, which have lived more or less under the same conditions for many generations.

Our industrial advance has been accompanied by the aggregation of the major portion of the population into cities, centres of industrial production. It is no accident that the incidence of psychoneurosis is much greater in civilized than in primitive races, in city dwellers than in country dwellers, and in our present-day population than in the population of eighty or ninety years ago.

In the course of the last century we have seen the rise of public health and preventive medicine, and in the implementation of the knowledge of this branch of applied science the "physical" health of civilized man, owing to the concomitant improvement in his physical environment, has made great strides forward.

Most unfortunately we find that the psychological health of the community has at the same time deteriorated, so that we have still, amongst the producing groups in the population, a high and increasing degree of "inability to work" in the form of psychoneurosis *et cetera*.

A comparison of the physical with the psychological environment of firstly the child, and secondly the adult, of 1870 and 1940, helps toward an understanding of this anomaly.

Comparing the conditions of the average working-class infant of 1870 and 1940, we find that eighty years ago breast-feeding was the rule, with no attention to the times of feeding; the baby was carried around in close physical contact with its mother and slept in bed at night with its parents or siblings. It was not washed and was probably swaddled for weeks at a time. No bowel training was embarked upon until the age of two or three years. Families were large and children plentiful, little if any attention being given them individually. Toys were few and the social impulses and drives of the child were easy of fulfilment. There was no compulsory education. The family structure was patriarchal and the "Jehovah-God" of the period was a terrible, unpredictable, omnipotent Being, modelled on the contemporary head of the family.

From the physiological point of view, the environment was extremely poor and characterized by bad water supply and sanitation, poor housing, overcrowding, poverty and malnutrition and long working hours.

However, psychologically the reverse was true. Emotional growth in the early years unfolded in its own way. The vital drives of infancy and childhood attained a moderate degree of outward expression, and so those physiological dysfunctions and tensional states associated with emotionally induced imbalance of the vegetative nervous system were neither acutely provoked nor unduly prevalent.

There was, however, in the adolescent phase, considerable frustration of emotional growth. "Teen-age" children were ignored, and this custom, associated with the psychological effect of the "heavy father", may have been at the root of the high incidence of hysteria in the Victorian era.

In the 1930's the rearing of the child was no longer based on instinct or local tradition. There was now consciously directed communal effort to rear babies in accordance with the principles of the latest scientific physical hygiene. Child welfare clinics had come to stay, and official propaganda on the subject was widespread among all sections of the population.

This was a revolutionary departure in the conditioning of children, there being no previous known comparable example in man's history. It has resulted in a tremendous decrease in infant mortality and an accompanying increased expectation of life. This was foreseen; but a surprise outcome was the resulting modification of the foundations of personality structure of the new generation.

In the 1930's only a proportion of babies were breast-fed and most of them were put on the bottle at about three months of age, certainly more so in urban areas than in the country. Feeding was based on the clock and the time-table rather than on innate biological rhythms. The child's impulse to play at the breast was unfulfilled and the dummy, considered unhygienic, was discarded. Bodily contact between mother and child was at a minimum. Babies were born in hospitals, and segregated in nurseries. The infant in arms became "the kid in the pram", which slept in a cot of its own and was left alone when it cried. The daily bath, much appreciated by the infant, was perhaps the only break in a stern impersonal regime. Bowel training began a few days after birth, again according to the clock. Water sanitation was general and no dirt or faeces was allowed in the house, the tidiness of which was incompatible with the free play and excretion of small children.

The new houses were set apart, families were smaller, there were few playmates for the toddler, whose social contacts were thus limited largely to parents, and whose social tendencies were denied outlet. The reaction of the parents who felt that they were never left alone, being one of more or less continuous admonitions and prohibitions, filled the child with inward feelings of insecurity and rendered it outwardly "difficult", while it was unable to attain the required standards of tidiness, punctuality and dutifulness.

As the birthrate dropped, young lives became scarcer and children more precious, and more attention was paid them. Automobile traffic became a new problem for the child. Traffic sense was necessary as soon as the art of walking was mastered. Emotional tensions were engendered, as the stage of cortical development reached did not permit of the finer degrees of voluntary control required. The child was forced to live up to adult standards in all things at a very early age.

As soon as possible the child began at kindergarten or day school, and now competition for stars and marks became miniature ordeals, which caused, when parents too greatly identified themselves with their offspring, much anxiety and even panic. The family structure was no longer patriarchal, but something new had evolved—an attempt to base the family on a parental dyad with mother and father as equals. This neutralization of sex distinctions was reflected in the modern picture of the Deity, no longer terrible and all-powerful, but the "Friend for little children above the bright blue sky", rapidly becoming dim and ineffective as the sky became the medium for aircraft manoeuvre and travel, and the child learned that life could not be maintained beyond the stratosphere.

The physiological response to the new environment was a new generation distinguished by vastly improved physical

health; but psychologically the present childhood environment, widespread amongst the masses of the population since 1920, set up emotional tensions and frustrations, progressively raising the proportion predisposed to psychophysiological dysfunction. Precipitation of this predisposition towards clinical manifestation after adolescence is now being indicated by the gradual increase of psychosomatic disease and psychoneurosis. As the babies of 1920 are now aged thirty years, we may expect a further deterioration in psychological health over the next twenty years.

There has been no working out of the oral and allied drives of infancy, and the child has consequently retained an excess of deep-seated insecurity and inexpressed dependency. Again, in early childhood there has been no adequate outlet for emotional drives, and unexpressed resentment and hostility have been retained. Some of this unliberated energy is diverted to obsessional trends, and a time-table robot existence has become increasingly prevalent.

The psychic environment of the adult shows equally revolutionary changes over the last century, life having become ever more complex. This has resulted in an increasingly large disruption, frustration, diversion and distortion of the drives and impulses of emotional life.

There has been an increasing disregard for cosmic and biological rhythms. In place of seasonal and diurnal rhythm has come the rhythm of the metropolitan machine, aided by developments in transport and artificial lighting. The working rhythms of the individual are increasingly disregarded and disapproved of by society in the rote of the time-table, of day shifts and night shifts and mass-production lines. The major portion of the community is subjected to the regulation of life in terms of clock rhythm.

Man has suffered separation from his outward roots in Mother Earth; 80% of the population dwells in the industrialized cities. Man is cut off from the times and tides of Nature which instigate and exercise deep-seated emotional responses.

The goods now mass-produced by human society by means of power-driven machinery were in 1860 made by hand. The changes in the means and methods of industry have brought about a standardized "artificial" society of city-dwellers.

The aim of work is to create. The old craftsman saw in visible form the growth of the product of his manipulative activity. The worker of today handles parts and is so denied an essential satisfaction. So there has been an increasing frustration of manipulative creativeness. The emotional satisfaction engendered by useful creation, the feeling of "something attempted, something done" is shadowy or non-existent in the production line, and such satisfaction as is provided by the handling of the machine is often denied by mass unemployment and enforced idleness.

Even more subtly but just as effectively do rationalized restrictions on output, "go-slow" methods to spin out the work, themselves a symptom of a "neurotic" and disintegrating society, operate further to frustrate the worker remaining in employment.

In place of a society psychologically integrated in the production of "social goods", there is a breaking down into sectional groups, warring against each other, oblivious to the common need of the whole community. So we get such anomalies as the national need for houses on the one hand, and on the other the formation of combines by the manufacturers and the imposition of restrictions on bricklaying by the unions.

Machines function in groups, and tending these machines aggregates men into groups. The average factory worker not only rushes for the "bus" or train, travels in noise and discomfort, starts, pauses and finishes work with his fellows, but has the same standard recreations, the same cheap entertainment; the cinema and the radio cater for the hypothetical average taste. He takes a holiday not when he needs it but when it is permitted. He does standard work at standard speed when ill or full of energy.

Possessions are an extension of the personality and their collection is a means of self-expression; but mass-

produced standardized possessions suppress individuality and result in psychological damage.

The natural outcome of the aggregation of industry in cities, and of the group structure of the resulting society engaged in industry, is that people share similar activities and live closer together. People are cut off from fresh air and sunshine, and a sedentary life accentuates unbalance of physical activity. Games are watched rather than played, and because the outdoor space of a town is generally an unattractive street, man becomes an indoor rather than an outdoor animal. There is little opportunity for a middle course between a solitary life at home and life in the midst of crowds. Small social groups are difficult to form, and instead of a few friends the townsman acquires a multitude of acquaintances. An artificial gregariousness replaces that intimate selective association which supplies an undoubted spiritual need.

A natural has been replaced by an artificial civilization. The chief ends of quantity manufacture are artificial things, and to a large extent worship is encouraged of the artificial as inherently better than the natural; and the use of the artificial is made more attractive to the naturally lazy.

Civilization is sophisticating our habits. We can too easily lose the self-expression and the spiritual and emotional satisfaction of doing things for ourselves, can lose interest in real life and human activity and purpose, because we find that they are less exciting—that they make more demands on our physical and mental energy than the fantasies laid on to our homes in the form of books, gramophone records and the radio. Too much listening to and reading of other people's ideas renders man incapable of original thought, though original thought was one of the things to raise him above the beasts.

We have standardized information in the form of newspapers and standardized education in schools and universities, associated with an examination system concerned mainly with the acquisition of information from books. It has hardly recognized the perhaps greater need for educating the emotions, learning life and developing personality and character. To impart and assimilate factual information are essential, but inadequate when substituted for education in living.

Society has further disintegrated in face of the increasing rapidity of change in its structure. Classes of society are no longer, as in 1870, stabilized and stratified. Wars, depressions and unemployment have been the causes of a widespread insecurity, and persons now know neither where they stand nor how long they will be able to do so. Class warfare emerged as the old order changed and broke, and a new order of reintegration has not yet appeared. The search for security against, on the one hand, occupational loss, failure of promotion, financial embarrassment or social disapproval, or on the other, inner threats arising from the frustrations of life, has evoked a style of living regulated by obsessional mechanisms as a defence agent against ever-growing danger. The consequent repression of emotional life actually resulted in a wave of relief and even satisfaction in 1939 on the outbreak of war and the prospect of positive decisive action.

Modern man is frustrated by an increasing absence of aim and direction. Something to live for is an important factor in the recovery of a sick patient. An important aim for many vanished with the decline of active religious faith. One of the natural ends of marriage for women is to have babies; but this conflicts with the financial security of the husband, or the freedom, narcissism or respectability of the wife.

There has been a progressive restriction of emotional vision. Only perhaps in war-time, and that under inspiring leadership, did the masses regain some sense of social purpose and movement towards a clearly envisaged goal.

So, in the course of social change in the last century, emotionally frustrating influences increased in intensity throughout, tending towards the provocation of widespread and deep-seated feelings of anxiety, insecurity, helplessness, resentment and isolation.

Of those who were most insecure, some became chronic helpless dependants, looking to the State to become their mother. Others defended themselves against these inner

emotions by excessive self-help and compulsive over-dependence. The "peptic ulcer" type falls in the latter category. Of those who were exasperated, resentful and hostile, some became chronic hypochondriacs, querulous and over-irritable whiners, or agitators; some developed strong obsessional traits, and others used their resultant energy with relentless, unremitting work in a compulsive drive to attain or maintain positions of power or authority.

The growing sense of social insecurity that provoked the need for reassurance was probably responsible for an extraordinary increase in tobacco smoking, sixteen-fold in England over a hundred years. Another symptom is the rapidly expanding popularity and consumption of patent medicines, and the spread of magazines devoted to personal health and vigour, and to personal psychology.

The incidence of psychosomatic dysfunctions has increased comparatively much faster in males than in females, with the single exception of diabetes. This may perhaps be due to the "emancipation" of the modern woman, which has provided her with access to many new interests and satisfactions, and has not been accompanied by the withdrawal of the social sanctions which enabled her to retain her moods and modes of feminine behaviour, by virtue of which she still continued to liberate her emotional tensions in many forms and expressions denied the male.

Some social groups are characterized by a peculiar incidence of a particular syndrome which may be epidemiologically traced to frustrations operating in infancy and to peculiar social stresses operating in adulthood. For example, the significantly high death rate from coronary thrombosis in doctors over the last twenty years, and especially among those eminent in the profession, is related not only to their early home background, but also to their occupational environment, which requires them to "keep on top" of the demands made on their services, as well as the demands of their colleagues that they should appear in the role of authority. In this sense obsessional trends can be, if not actually induced, at least reinforced.

From the standpoint of ontogenetic theory, the psychosocial disorders—manifestations of the disintegration of a society—may be regarded as the homologues of the manifestations of disintegration of a family group. Thus poor output, lack of initiative, boredom and apathy in socially frustrated adults are but a revival of the listlessness, tiredness and lack of interest of the "nervous child", whose vital interests have been frustrated and who therefore feels that there is nothing to do. Delinquency and revolt (including agitatorism) represent the recall of early destructive hostility against parents and siblings; and the psychosomatic organic affections (so typically associated with obsessional personality trends) represent the precipitation in clinical form of those morbid psychophysiological dysfunctions of infancy that are induced by frustration of early emotional development. Even the inability of the adults of a sick society to reproduce their species might be equated with the inability of a frustrated child to identify itself with emotionally mature father and mother figures. Symptoms of problem groups are symptoms of the problem child.

A particular component group of society, which has been hitherto dealt with in general terms, is that actively engaged in industrial production.

Psychoneurosis in industry may be generalized as group psychological ill-health. Its causes may be from without the group, as described above, or from within the group. The latter may be physical—such as excessive heat, cold, humidity or noise, or defective ventilation or lighting; conditions associated with hours of work, overtime, night work or holidays; with speed, rhythm or intensity of work; with the planning of operations, machine design and proper positioning; or exposure to toxic agents; or they may be psychological—such as monotony, absence of discipline or faulty supervision, insecurity of employment, absence of group harmony, incorrect work incentives, and incorrect methods of personnel selection and promotion. These may cause excessive expenditure of psychosomatic energy. Conditions interfering with recuperation of this energy are irregular meals and inadequate facilities for meals, broken time and long journeys to and from work.

Signs and symptoms of ill-health of an industrial group are an increase in the numbers of workers reporting sick, especially with trivial complaints and psychosomatic complaints or "debilities", an increase in the number of workers suffering from unexplainable fatigue, general dissatisfaction and unrest, diminishing output and quality of product, rising accident rates, increased labour turnover and absenteeism.

The healthy industrial group is efficient, cooperative and happy, the unhealthy group inefficient and dissatisfied.

Certain satisfactions are necessary for health. These include the obtaining of sufficient income to provide for the physical needs of the worker and his dependants, and the opportunity of doing interesting, useful and significant work that wins a satisfactory degree of social approval and of satisfying social instincts and sentiments in the immediate social situation in which he works. In the last analysis, it is usually found that the morale of a factory is determined by the nature of the social satisfactions derived from human contacts in working hours.

Both individual and group psychic disorders arise from inability or failure to make successful adaptations to circumstances, and unrest may become evident, with strikes and lockouts, unsubstantial complaints, and "go-slow" tactics, either intentional or otherwise.

Those engaged in industry may be divided into five groups: the executive or managerial, the supervisory, the skilled or craft workers, the semi-skilled and the unskilled. They react in different ways. The strongest and healthiest groups are those which have well-recognized industrial functions and whose members work side by side with each other; so that lack of intimate social contact and differences in rank and income make common social action difficult to maintain.

The supervisory group is both a buffer and a link between the management and the workers. Their function is not to make things but to see that others do so effectively. Hence their constructive sentiments may lack adequate satisfaction. They are often promoted from the ranks of skilled workers and often work in isolation. Their group life is consequently unsatisfactory, and they suffer severe and prolonged nervous tension. Their loyalties are divided into instinctive sympathy with and desire to satisfy those below them, in groups from which they have been promoted, and their duties to the executive of the firm.

The trade unions of the craft groups are usually conservative, and they have a well-organized social life with well-defined leadership. They work side by side and have a well-defined industrial function. The most frequent cause of unrest amongst them is change in the methods of production which may render their skill redundant.

The semi-skilled groups are less firmly organized and less specialized, their work being less interesting and satisfying. Their leadership is less clearly defined, they are less conservative and more liable to irrational reactions.

The functional purpose of the unskilled group is weak, absent or of slight value to the members. They are particularly apt to react irrationally as a group to changes in total environment. Unrest amongst them is usually due to economic causes or results from disturbance in their purely social existence—for example, poor supervision. Harmonized group relations are of prime importance amongst unskilled workers.

The social life of a factory or mine is a delicate organism, and most unforeseen and unexpected effects may be produced by apparently simple alterations in the total environment of almost any of the subordinate industrial groups. Reallocation of personnel, promotion, dismissal, alteration in the layout of processes or shops may break up old-established groups, destroy friendly contacts, change familiar routines and strain established loyalties.

Among specific occupational factors causing psychic strain are undue mental stress on certain types of workers, with resulting breakdown—for example, the worker of moderate intelligence and high sense of duty given a task requiring high intelligence, or the intelligent worker given stereotyped, monotonous work.

Dangerous occupations with special risks such as coal-mining and transport have a high incidence of traumatic

neurosis. They are subject to hazards which cannot be foreseen or guarded against by the exercise of foresight on the part of the individual worker. The common features of occupational neuroses such as these are: the onset of the condition after trauma or an occupational fatigue state, in poorly integrated personalities; the fact that the amount of disability caused is out of all proportion, both in severity and in length, to the original injury; the fact that the disability tends to persist even after the removal or cure of the original cause; and the fact that every occupational neurosis is purposive—that is, the illness aims at achieving some end unconsciously desired by the patient and "valuable" to him.

Present compensation laws tend to prolong rather than shorten the period of disability, and actually tend to cause occupational neurosis rather than to prevent it. Personal observation of coal-miners, who appear at medical boards, both for medical ("dust") and for orthopaedic complaints, has shown that at least 50% of the disability of these men has a psychiatric basis, in many cases the individual disability being 100% psychoneurotic. Early and exact diagnosis, and correct early treatment and prognosis, are the cardinal requirements in the prevention of traumatic neurosis.

Industry can contribute by the exclusion of psychopaths from dangerous occupations at preemployment medical examination; by the provision of adequate specialist services for physical and psychiatric treatment of industrial injury; by early rehabilitation of injured men by means of light alternative occupation in cases of accident; by reorganization of the compensation laws to ensure that there will remain sufficient incentive for gainful employment; by more careful consideration of the industrial factors that predispose workers to neurosis and especially by improvement of unsatisfactory conditions of work, of the status of the individual worker and of his security of employment; and by unremitting attention to safety and to accident prevention.

Conclusion.

An attempt has been made to point out the psychosocial canker in present-day society. Unless we can find some way of mutual adaptation between man and mechanical civilization, we may so damage humanity as to preclude further evolution and progress.

We must satisfy human occupational needs with sufficient economic reward, with emotional satisfaction, with facilities for use of the body and opportunities for the exercise of mental powers. Man must secure an existence balanced physically, intellectually and emotionally.

Correct education must play a prime part in the reintegration of society. It is the aim of education to produce an adult fully armed, trained and equipped for the battle of life, capable of taking his full share in the activities of society and of making the maximum effective use of the physical and mental potentialities with which he is endowed. Man must be educated for work, for leisure and for citizenship in order to fulfil his duties to himself and to others.

A new spirit must be introduced into our democratic planning. In the economic sphere, both men and management must accept the new order and attempt to see the whole dynamic picture of society and of life—must co-operate together in the production of "social goods". Management must regard workers as members of an occupational social group rather than as just industrial units.

In this, world-wide cooperation of humanity, of all social groups on earth, must be achieved. Each individual should have an integrated realization of the whole of society at work, and in particular of his own industry, and understand the place he and his immediate group occupy in the whole.

Civilized man must regain a sense of social purpose, and, considering this social purpose, should at all times act according to the welfare of the containing community, instead of to that of the sectional interests of groups of specialists, trade unions, federations of industrialists or financiers, or even of individual nations or groups of nations.

There has been a disparity between man's social and biological evolution, and as a group modern society has not yet managed psychologically to come into equilibrium, has not yet adjusted itself to the rapid changes of the last hundred years.

The leader of any group must possess an appreciation of its social purpose and a belief that the purpose is worthwhile, he must have an adaptable as opposed to a rigid obsessional personality, the ability to endure hostility from others, and finally a knowledge of the symptoms of social sickness and the nature of its causes, and the willingness to take action in terms of the findings. Emphasis must here be placed on the inseparability, in the task of reintegrating modern civilized society, of the leaders of industry and of medicine, and more particularly of those orientated toward psychiatry and sociological medicine.

I have tried to set out an approach toward gaining the required knowledge, in the hope that our profession might take a leading part in the struggle of humanity out of the psychosocial morass into which it has fallen, and in the restoration of the morale of mankind.

Reviews.

STEDMAN'S MEDICAL DICTIONARY.

THE latest edition of "Stedman's Medical Dictionary" maintains the high standard expected of this well-known reference book.¹ It has been completely revised, attention being given to the deletion of obsolete words and the revision of old definitions, as well as to the addition of new material. No new trade names have been added and most of those included in the previous edition have been taken out; this may be regretted by some, but it is probably wise, as the coining of new trade names is seemingly endless and uncontrolled, and no dictionary editor could hope to keep up with them all. A new and interesting feature of this edition is the inclusion of short biographical sketches of the principal figures in the history of medicine; this has been done quite well and is to be commended, though it is a pity that the related researches do not seem to have reached this side of the Pacific. Previous special features of this dictionary have been continued, including the section on medical etymology. A preliminary perusal has not revealed any significant errors. This dictionary can be recommended as a comprehensive and reliable, and even entertaining, reference book.

THE ORIGIN OF MEDICAL TERMS.

IN "The Origin of Medical Terms" H. A. Skinner, who is professor of anatomy in the University of Western Ontario, has brought together a unique collection of facts and ideas.² His object in compiling this material was to place in the hands of medical students and those interested in medical terminology a general reference book of standard medical terms, particularly those likely to be encountered by the medical student as he enters upon the study of medicine; special attention is paid to the basic medical sciences of anatomy, physiology, biochemistry and pathology. The result is much to be commended. The medical student who is fortunate enough to have this book at his elbow during the tremendous expansion of his vocabulary, which is inescapable in the few short years of a medical course, should certainly "obtain a proper evaluation of each new word". More than that, unless he is deaf and blind to the magic of words and their history, he will be enriched in knowledge and thought. On the other hand, the seasoned

¹ "Stedman's Medical Dictionary", edited by Norman Burke Taylor, M.D., F.R.S.C., F.R.C.S. (Edinburgh), F.R.C.P. (Can.), M.R.C.S. (London), in collaboration with Allen Ellsworth Taylor, D.S.O., M.A.; Seventeenth Revised Edition; 1949. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 9" x 6", pp. 1364, with illustrations. Price: £4 11s. 6d.

² "The Origin of Medical Terms", by Henry Alan Skinner, M.B., F.R.C.S. (C.); 1949. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" x 6 3/4". pp. 392. Price: £5 15s. 3d.

practitioner, who has long ago so absorbed his medical vocabulary that it colours even his casual conversation, should find the book equally fascinating and stimulating. The material is arranged alphabetically as a kind of "dictionary of origins" and is quite extensive, but the author has not attempted to make it exhaustive. This is obviously not his object. Any competent medical dictionary will supply much of the simple explanation and straightforward definition which is omitted from this book. By thus selecting and limiting the scope of his work, the author has been able to give more space to words and names with particular historical or etymological interest. The amount of research involved in compiling the book has obviously been great; it has equally obviously been a labour of love. No doubt the results of further research will appear in later editions. Medical students should be urged to use it, and it should be in any library to which they have access. Without doubt many medical practitioners also would find it of absorbing interest.

REGULATION OF INTESTINAL MOTILITY.

A SHORT book, "Nervous and Neurohumoral Regulation of Intestinal Motility", by Professor Youmans, is more a description of his own experimental results than a comprehensive treatise on the subject indicated by the title.¹ As with all books these days, it suffers from the delays in printing. The author's concepts of the adrenergic mechanisms in the intestine would certainly be modified by the newer knowledge of the actions of nor-adrenaline which was becoming generally recognized at about the time the manuscript probably went to press.

The book is written in a concise and lucid fashion; the description of the experiments is clear, and the discussion on the findings and some limited references to the literature appear authoritative. There is much literature, however, which finds no place in the author's considerations, and in this respect the book is disappointing. A subject so important as the behaviour of the intestine does deserve a modern synthesis commencing at the earliest experimental work and embracing a great deal of clinical experimental work which has been done over the last hundred years. For those wanting a compendium of some of the more recent experimental work, the book will be adequate.

A PSYCHIATRIC STUDY OF TUBERCULOSIS.

A CAT, it is said, may look at a king. So, it would seem, a psychiatrist may look at tuberculosis. Actually there is nothing to prevent him from looking at anything he chooses; and if it be at chronic illness, one may wonder why the psychiatrist was driven to regard tuberculosis, rather than diabetes, rheumatoid arthritis or any other form of disabling illness. But apparently in this instance The National Association for the Prevention of Tuberculosis invited Dr. Eric Wittkower to make a study of the psychological aspects of tuberculosis, and his book "A Psychiatrist Looks at Tuberculosis" is the result.² Other psychiatrists before him have "looked at" tuberculosis. In fact, there is a considerable bibliography on the subject and more than a modicum of disagreement. There is little doubt that some have tried to make too much of the mental peculiarities of the consumptive and have unduly strained at the psychiatric leash in trying to draw conclusions from the pre-morbid changes in these sufferers.

The author of the present study believes that the sufferer from pulmonary tuberculosis passes through three psychological stages in relation to the illness: in the first of these he reacts emotionally to his symptoms, then to the intimation of the disease, and finally to the illness itself which may end fatally or lead to complete recovery or even to a chronic state with varying symptoms and changing attitudes in his mode of living. Brief case histories accompany these established stages; and simple statistics are set down to

include those whose reaction is one of shock, incredulity or little concern; and in the case of reaction to illness, those who display hypochondriacal tendencies, egocentricity, despondency, aggressiveness and changes of mood. Conclusions are drawn which appear somewhat wide and rather too discursive to be of great value to the chest specialist. A long section of the book is devoted to a consideration of factors determining the behaviour of tuberculous patients. Little evidence is adduced in this study to substantiate the common belief regarding the hypersexuality of the consumptive, as 88% of the patients studied experienced either no change or a diminution of sexual desire.

The general psychopathological conclusions show a somewhat disappointing discursiveness. It is not suggested that this is the author's fault, but rather that tuberculosis is not a specifically selective illness. And for this reason one finds people with a receptive and an over-dependent attitude together with those who display an ostentatious independence, and between these a full gamut of those who show varying degrees of these qualities. Between many who are insecure and over-dependent are others of the self-driving and conflict-harassed type. There is some evidence that those who develop tuberculosis are unable to sublimate their aggressive behaviour and may turn it against themselves. The author feels that his conclusions, while not conflicting with the usual aetiological factors involved in pulmonary tuberculosis, may help the physician to a greater understanding of why such people fall sick, though they will not tell him why their sickness should be tuberculosis. There is no discounting the honesty of this study, nor the author's scrupulous endeavour to avoid jumping to conclusions or forcing his observations into a preconceived theory. But how far he may have been successful in bringing down psychiatric material which will be of practical value in the treatment or the prevention of tuberculosis remains to be seen. To one at least it would appear that such inconclusive and tentative conclusions as he has advanced rather tend to indicate the necessity for further research or that such research should be directed to other focal points.

Notes on Books, Current Journals and New Appliances.

A GUIDE TO PRESCRIPTION WRITING.

FOURTEEN editions and many reprints of "The Pocket Prescriber and Guide to Prescription Writing" have appeared since 1882, so it apparently meets a need.¹ It is published, according to the Introduction, "with a view to helping the newly qualified doctor in the early days of practice", and it may well be acceptable for that purpose. Any thought, however, of regarding it as a miniature text-book of therapeutics should be vigorously discouraged. For those who use it rightly, it contains much helpful information. The way to write a prescription is described from the elementary stage and a considerable number of prescriptions are set out under therapeutic headings followed by a selection from the British National Formulary. Most of the prescriptions are written in English. Amongst a variety of contents are posological tables, a list of proprietary preparations, and a brief account of newer medicaments included in the British Pharmacopoeia, 1948, and the British Pharmaceutical Codex. The book is well printed and bound and would fit into quite a small pocket.

EPIDEMIOLOGY IN COUNTRY PRACTICE.

It is pleasing to see that W. N. Pickles's admirable little book "Epidemiology in Country Practice" has been reissued.² It was first published in May, 1939, and apparently was well received. A favourable review appeared in this journal on November 4, 1939. The publishers now reveal that in

¹ "Nervous and Neurohumoral Regulation of Intestinal Motility", by W. B. Youmans; 1949. London: Interscience Publishers, Limited. New York: Interscience Publishers, Incorporated. 9" x 6", pp. 148, with 32 illustrations. Price: \$4.75.

² "A Psychiatrist Looks at Tuberculosis", by Eric Wittkower, M.D., with an introduction by John Rickman, M.D.; 1949. London: The National Association for the Prevention of Tuberculosis. 8½" x 5½", pp. 154.

¹ "The Pocket Prescriber and Guide to Prescription Writing", by David Mitchell MacDonald, M.D., D.P.H., F.R.C.P.E.; revised by Alistair G. Cruikshank, F.R.C.P.E.; Fourteenth Edition; 1949. Edinburgh: E. and S. Livingstone, Limited. 4" x 3", pp. 316. Price: 4s. 6d.

² "Epidemiology in Country Practice", by William Norman Pickles, M.D. (London), with a preface by Major Greenwood, F.R.S., D.Sc., F.R.C.P.; 1949. Bristol: John Wright and Sons, Limited. London: Simpkin Marshall, Limited. 8½" x 5½", pp. 126, with a few illustrations. Price: 10s. 6d.

April, 1941, the entire bound and sheet stock and the type of the book were destroyed by enemy action. In response to requests they have had the book re-set without alteration, and it has now appeared virtually the same as when first issued. We agree with the publishers that the book is "obviously worthy of re-publication", and commend it especially to country practitioners. In the words of our previous review, "Pickles has proved that there is still scope for original research in the isolated country practice and that there is still room for Mackenzie's ideal in the general practitioner's mind. He has provided an inspiration to those whose occasional urges toward research have been discouraged by an awareness of their lack of both technique and knowledge". This book has literary charm and stimulates the true spirit of medical practice. It can be read by any practitioner with pleasure and advantage. It may be noted incidentally that the concluding chapter on epidemic myalgia or Bornholm disease gains additional interest from the discussion on the subject by several country practitioners in this journal during April and May, 1949.

PROCEEDINGS OF AN INDUSTRIAL MEDICINE CONGRESS.

"THE PROCEEDINGS OF THE NINTH INTERNATIONAL CONGRESS ON INDUSTRIAL MEDICINE" is a formidable volume, but it contains much valuable material, which will be of interest to all who are concerned, directly or indirectly, with the problems of industrial medicine.¹ In addition to a brief account of the Permanent International Commission on Industrial Medicine and the speeches delivered by distinguished men at the opening and closing sessions of the congress, the volume records in either English or French the papers read at the various sessions of the congress with a synopsis of each in both English and French; in some cases the following discussion is added. Well over 200 people are listed in the "Who's Who" as contributing papers to the congress. Subjects of papers include various social aspects of industrial medicine, factors of environment, industrial nurses, a variety of clinical questions, the organization of industrial medical services, the hazards and aspects of specific industries, and a group of special subjects. Australians who contributed papers were Miss Violet I. Elliott and Dr. J. H. Gowland, both of Victoria. The volume is well produced and should find a ready welcome in appropriate quarters.

THE EFFECTS OF PAIN.

In his Buckston Browne Prize Essay, "The Mental and Physical Effects of Pain", V. C. Medvei has brought together much of the current knowledge and significant speculation on a little understood subject.² The essay is divided into three sections: one containing introductory and historical remarks, the second and third dealing respectively with the mental and the physical effects of pain. Much ground is covered and many points of view are sought; there are 87 references, and those quoted range from the poets to the physiologists, from Leonardo da Vinci to Grantly Dick Read, from Aristotle to Sir Thomas Lewis. It is this diversity of material and ideas which constitutes both the weakness and the strength of the essay. The author contributes little that is original to the subject, but at the same time provides a valuable and informative guide to relevant literature. The reader may be wearied and even confused by the multitude of facts and ideas tumbling over one another in a small space, and yet will be grateful for the unusual and apposite quotations from obscure sources as well as the profound thought and reliable information from acknowledged authorities. It is a pity that too great a compression of material and a certain obscurity of expression in places have been allowed to spoil the results of the author's obviously considerable labours. Despite these faults, the essay is recommended to all who are interested in an understanding of pain.

¹ "The Proceedings of the Ninth International Congress on Industrial Medicine: London, 13th-17th September, 1948"; 1949. Bristol: John Wright and Sons, Limited. London: Simpkin Marshall, Limited. 9½" x 7½", pp. 1120, with illustrations. Price: 60s.

² "The Mental and Physical Effects of Pain", by V. C. Medvei, M.D., M.R.C.P.; 1949. Edinburgh: E. and S. Livingstone, Limited. 7" x 4½", pp. 60. Price: 3s.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Green Thralldom: Essays of a Chinese Biologist", by Tang Pei-Sung, with an introduction by Joseph Needham, F.R.S.; 1949. London: George Allen and Unwin, Limited. 8½" x 5½", pp. 134. Price: 12s. 6d.

Essays based on various lines of investigation undertaken in the Tsing-Huo University physiological laboratory during the war years.

"Essentials of Obstetrical and Gynecological Pathology", by Robert L. Faulkner, M.D., F.A.C.S., and Marion Douglass, M.D.; Second Edition; 1949. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9" x 7", pp. 362, with 300 illustrations. Price: 89s. 3d.

Intended, because of its conciseness, to be used directly in class-work as a text-book of obstetrical and gynecological pathology.

"Sight Light and Efficiency", by H. C. Weston; 1949. London: H. K. Lewis and Company, Limited. 9½" x 6½", pp. 328, with 132 illustrations, some of them coloured. Price: 12 2s.

The author aims "to give a sufficient account of the subjects involved to bring out the principles, and some of the techniques, of a system of management of occupational sight and sights".

"Is Evolution a Myth?", a debate between Douglas Dewar, B.A., F.Z.S., L. Merson Davies, D.Sc., Ph.D., F.R.S.E., F.G.S., and Professor J. B. S. Haldane, F.R.S.; 1949. London: C. A. Watts and Company, Limited. The Paternoster Press. 7½" x 4½", pp. 92. Price: 2s. 6d.

A written debate between representatives of the Evolution Protest Movement and the Rationalist Press Association, Limited.

"Body and Mature Behaviour: A Study of Anxiety, Sex, Gravitation and Learning", by M. Feldenkrais; 1949. London: Routledge and Kegan Paul, Limited. Sydney: Walter Standish and Sons. 8½" x 5½", pp. 180, with a few illustrations. Price: 12s. 6d.

"An examination of the influences of the carriage, posture and movement of the body and of muscular perception on certain patterns of behaviour."

"Occupational Eye Diseases and Injuries", by Joseph Minton, F.R.C.S. (England); 1949. London: William Heinemann (Medical Books), Limited. 8½" x 5½", pp. 196, with 24 illustrations. Price: 21s.

A handbook for ophthalmologists, industrial medical officers and industrial nurses.

"The Pocket Prescriber and Guide to Prescription Writing", by David Mitchell MacDonald, M.D., D.P.H., F.R.C.P.E.; revised by Alistair G. Cruikshank, F.R.C.P.E.; Fourteenth Edition; 1949. Edinburgh: E. and S. Livingstone, Limited. 4" x 3", pp. 316. Price: 4s. 6d.

Intended to help the young doctor with his prescription writing in the early days of practice.

"A Handbook for Industrial Nurses", by Marion M. West, S.R.N., S.C.M., with contributions by Valerie Bowerman, S.R.N., and H. F. Chard, M.B., B.S., D.O.M.S., J.I.H.; Second Edition; 1949. London: Edward Arnold and Company. 7½" x 5", pp. 276. Price: 9s.

A complete revision, with additions, of the first edition of 1941.

"Epidemiology in Country Practice", by William Norman Pickles, M.D. (London), with a preface by Major Greenwood, F.R.S., D.Sc., F.R.C.P.; 1949. Bristol: John Wright and Sons, Limited. London: Simpkin Marshall, Limited. 8½" x 5½", pp. 126, with a few illustrations. Price: 10s. 6d.

A reissue without alteration of a book published in 1939, the entire stock and type of which were destroyed by enemy action in 1941.

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE MEETING OF THE FEDERAL COUNCIL.

It is probably correct to say that never before has the Federal Council of the British Medical Association in Australia met with such a feeling of responsibility and with such hope for the future as were experienced at the meeting reported in this issue. The result of the legal action before the High Court of Australia in respect of the validity of *The Pharmaceutical Benefits Act* had shown that the stand taken by the Council was correct, and that the Government had not the power to subject the medical profession to what in the provisions of the Act was rightly regarded as civil conscription. This legal event was, as we all know, the culmination of a long period of resistance, which was characterized by discussion after discussion with successive Ministers for Health. All along the line the medical profession, acting through its own Federal Council, has expressed its willingness, and indeed has urged the Government, to take steps that will create for the people a health service suited to present-day needs. The Federal Council's policy has been one of "first things first". It has insisted that certain preventive measures should be undertaken, that the hospital facilities of the whole Commonwealth should be reviewed and put in order, that social deficiencies of one kind and another with a direct bearing on health should be made good. It wanted these things rather than what was known as "free medicine"; it knew that the community was likely, as others had done, to acquire with "free medicine" a medicine-drinking habit which would serve no useful purpose. When the Government insisted that the people were to have their medicine supplied to them without direct payment, the profession agreed that if this was to be done, it should be done in such a way that would not endanger the freedom of the profession. It will be remembered that the Federal Council agreed that certain expensive life-saving and disease-preventing drugs should be given to patients on their doctors' prescriptions, written in the usual way in the ordinary course of practice. These facts have to be borne in mind at the present time, even more constantly than they were in the past. The people of the Commonwealth have by and large appreciated the

profession's point of view, but they know by this time that progress in the provision of a health service must take place—the Federal Council and the Branches of the British Medical Association have been drumming this into them for long enough. We cannot expect them to sit down and wait much longer. And we all know that many members of the profession also want progress to be made along coordinated and acceptable lines. There is every justification for the view that the present is a more difficult time than the medical profession has yet known in regard to health service. The Federal Council has been forced for years to say "no" to importunate ministers lacking understanding of its point of view. Now the Council is faced with a new government and with a Minister who is a highly trained medical man with years of experience of practice. This Minister says plainly that he wishes to see the point of view of the medical profession whose members are clearly more conversant with the problems of health than anyone else. It is clear that the medical profession through its own Federal Council must become willingly creative, and must help to evolve something that will meet the needs of the people, will appeal to the thinking members of the community, will leave the progress of medical science unshackled and the practitioners of medicine with their legitimate freedom. If we consider these points they will be appreciated as essential. The first point about any medical service is that it must meet the needs of the people—not what they imagine are their needs, because they are misinformed or lazy, but what they need in the light of the present stage to which medical science and its handmaiden, sociological medicine, have advanced. The service must appeal to people who think (and these are not so few in number as some would have us believe); if it has no appeal its adoption will be a wearisome business. Of the need for freedom of those who by research and study and practice seek to advance medical knowledge, there is no need to make more than passing mention to readers of this journal—advance in medicine is made not because it has been commanded in this or that way, but because men and women follow the light where it leads them and are content. The actual practitioner of medicine deprived of this freedom is nothing but a cipher.

A great deal of the time of the recent meeting was taken up by a conference with the Minister. Readers will gather from the report that it was a friendly and informal conference. Sir Earle Page's opening remarks have been published in full, and from what he said it will be clear that the idea behind his general scheme is self-help. He intends that the Government shall help people to help themselves. Unfortunately the general outline of his scheme cannot be reproduced here; the Minister does not wish it to be made public until some decision has been made about it. In some respects the scheme breaks new ground and will therefore have to be considered by Branch members before the Federal Council will be in a position to give a reply to the Minister. Although the plans relating to the supply of expensive life-saving and disease-preventing drugs will most likely come to fruition, the intention is that they shall form part of the general scheme of medical planning and not be a separate *bonne bouche*. Some importance may be attached to the fact that the Federal Council has agreed to the Minister's request

for the appointment of committees, especially the committee comprising the Council's executive officers, who will from time to time discuss with him matters relating to the service on which they may be able to give advice and help. The practical point that emerges is that the Branches must realize that they are faced with the task of making momentous decisions, and that the task calls for a genuine desire to find a solution, for a sympathetic understanding of the Minister's ideas and for what we may call a creative attitude of mind.

Other matters of importance discussed by the Federal Council at its meeting included the Emergency Medical Services, the Australasian Medical Congress (British Medical Association), whose seventh session is to be held at Brisbane in May and June of this year, and the British Commonwealth Medical Conference. These will not be mentioned further, because of the need to direct as much attention as possible to the coming discussions on medical planning for the future.

Current Comment.

SERVICE REJECTIONS ON CARDIO-VASCULAR GROUNDS.

THOSE who had the responsibility of examining numbers of recruits for the services during the last war know well the problem of doubtful fitness. At times a rapid decision had to be made and neither time nor available facilities allowed an exhaustive investigation. Of those who were rejected as unfit, some resumed civilian life, pleased or disappointed according to their points of view, often to carry on strenuous activity with no apparent harm; some were accepted as fit for service at subsequent examinations. Of those who were accepted after hesitation some proved fit, others were a burden to everyone till they were finally got rid of. It is unfortunate that little has been done to follow up these men of doubtful fitness, for there must be useful lessons to be learnt from them. For this reason, and particularly because some of the most difficult decisions were related to cardio-vascular findings, a follow-up study by P. D. White, R. L. Levy, W. J. Kerr, W. D. Stroud and G. K. Fenn¹ will be of wide interest. It refers to 303 young men who are described, without the blinking of a literary eyelid, as "cardiovascular rejectees". They had been originally rejected for military service because of diagnoses of cardio-vascular disease, hypertension or neuro-circulatory asthenia, but later (in 1943) were reclassified as 1A by special cardio-vascular boards; the follow-up study was made by the same boards in 1947. Heart murmurs, which are subjects for clinical controversy anywhere, were the commonest cause for the original rejections, but the cardiologists on the special board did not consider their appraisal difficult. The great majority of the murmurs are described as variable, unimportant and physiological in type, "being heard in at least half of these healthy young men". Between 1943 and 1947, four men developed rheumatic heart disease, but the general results indicate the "salvage" value of review by cardiac consultants. The most difficult problem and one that it is felt remains unsolved by the more recent examination is the appraisal of "border-line" blood pressure levels, in particular of transient hypertension (over 150 millimetres of mercury, systolic, or over 90 millimetres, diastolic, subsiding after half an hour's rest). Of 67 men with transient hypertension in 1943, 33 had normal pressure readings in 1947; 17 still had transient hypertension, and 17 had sustained hypertension. Of those with normal blood pressure in 1943, 13 had transient hypertension in 1947, and 10 had sustained hypertension.

Further analysis of the findings suggests a relationship between overweight and the persistence of transient hypertension or the development of sustained hypertension; but White and his colleagues permit themselves no hasty conclusions, looking to further follow-up studies for elucidation of the question. Of 35 men with transient tachycardia in 1943 (a heart rate over 100 beats per minute subsiding after half an hour's rest), 19 had no tachycardia in 1947. In a few cases the reverse occurred. Not much can be inferred from these findings, but there is some evidence that transient hypertension and transient tachycardia are of about equal prognostic importance in relation to the later development of sustained hypertension. Heart size as measured with teloradiography showed only minor variations, towards increase or decrease, between 1943 and 1947. In only four men the heart enlarged; in one of these cases hypertension was present, in the other three no explanation was found. There was little difficulty in interpreting electrocardiograms; a few borderline cases were noted on both occasions, but in only one was a distinct abnormality found at the end of four years. Neuro-circulatory asthenia was an uncommon development in the four years; seven men classed as normal in 1943 were considered to have the condition in 1947, but otherwise it had apparently been eliminated at the 1943 examination.

In general, these 303 men reviewed served long and well in the armed forces. A few were discharged from service for cardio-vascular reasons, but the great majority vindicated the judgement of the reexamining board of 1943. It is clear that this use of experts had an appreciable "salvage" value, and doubtless also rescued quite a number of men from the snare of spurious cardiac invalidism.

STREPTOMYCIN IN THE TREATMENT OF WHOOPING-COUGH.

AMONG the many forms of treatment of whooping-cough, the use of antibiotics seems to have some promise. Of the other methods the pharmacological have not given any great cause for satisfaction, and the immunological have obvious limitations. Since we cannot be confident of prophylaxis, and therefore are still faced with the problems of this exhausting and often dangerous disease, modern research is looked to for further help. Two teams of paediatricians have published studies in the use of streptomycin. Lewis W. Wannamaker, Jerome L. Kohn and Manfred Weichsel have treated 129 patients over a period of six months, and have also observed a control series of 21 children at the same time.¹ Kenneth S. Shepard, Jerome L. Kohn, Seymour R. Kaplan and Theodore C. Allen pursued the subject further with another series of 64 children, a younger group under three years of age, and an older group over three, which contrasted with the previous observations, which were mainly made on babies under one year.²

The series of Wannamaker and his colleagues was divided into three groups according to the method of administration of streptomycin; this was given as intranasal drops, in an aerosol mist and by intramuscular injection. Some of the patients were so severely ill that the planned details of treatment could not always be carried out. Intranasal treatment was at first used to administer 10,000 microgrammes of streptomycin in each millilitre of saline solution, but the dosage was later increased to four times this strength, and half a millilitre was introduced into each nostril three times daily after cleansing by suction. Age was disregarded in dosage both with the use of this method and with that of the aerosol; in the latter one millilitre of a solution containing 50,000 microgrammes was given three times each day. The aerosol was administered with a stream of oxygen into a plastic hood over the head of the child. This was practicable only with young infants, and even with them some restraint was sometimes necessary. Older children were treated by using the nebulizer through the

¹ *The Journal of the American Medical Association*, April 16, 1949.

² *American Journal of Diseases of Children*, August, 1949.

³ *Ibidem*.

mouth, and later by a larger sized hood. The dosage used for intramuscular injections was 50,000 microgrammes for young infants, rising to 200,000 microgrammes for older children, given every three hours, over an average period of six days. The level of streptomycin in the blood was ascertained by a method similar to that used for penicillin. Complications such as respiratory or otitic infections were met by giving in addition sulphadiazine or penicillin. Respiratory infections were observed before, during and after the administration of streptomycin. Six deaths occurred in this series.

The observations of Shepard and his colleagues were designed to supplement information obtained in the earlier work. Since these workers were of the opinion that no particular benefit was seen from the intranasal method, they did not employ it, but instead investigated the effect of streptomycin given as an aerosol and intramuscularly, and also by both routes. Both these teams were in agreement about the intranasal route, and did not think it was worth using. Cultures taken from the nasal passages did not show that the local exhibition of streptomycin discouraged the *Haemophilus pertussis*. The combined results of these two investigations pointed to the aerosol and intramuscular injections of streptomycin as being of some value. The authors admit that it is difficult to arrive at a true estimate of the effects of any therapeutic agent in a disease like pertussis. This really amounts to an admission that no agent gives dramatic results. A clinical impression was gained that streptomycin had a favourable influence on the course of the disease, though the previously recorded results from the use of hyperimmune serum seemed better. The clinical course of the children under one year was rather more favourable than that of the older children. No toxic effects were observed in any child.

CILIARY ACTION.

ALL doctors know something about cilia and most pay at least lip service to their importance, but in practice too little real attention is given to them other than perhaps as the basis of weak puns. It is surprising, as V. E. Negus¹ has pointed out, that physicians place so much stress on the value of cough and so little on that of ciliary action, since cough is really a pathological phenomenon, while ciliary action is an everyday and normal means of protection. Again, he goes on, those dealing with respiratory diseases should never lose sight of the dependence on cilia in the physiological processes of the nose and sinuses, with a corresponding danger when the mechanism is upset, the upper air passages then becoming a source of danger instead of a means of protection of the lower air tracts. Negus has provided an interesting and informative account of current knowledge of cilia and their action, based largely on the well-known work of Proetz. He states that in ciliated cells the cilium appears as a permanent projection with the power of altering its shape. During ciliary action a whip-like motion is seen leading to an active backward fling, with a passive recoil to the curved resting position; the movement of propulsion is in the direction of the active stroke. The rate of beat is said to be 160 to 250 per minute, or even up to 720 per minute. The functions in which cilia are involved include locomotion (certain unicellular organisms), deglutition (mussels, oysters, vorticella and frogs), respiration (molluscs and some fishes), olfaction (eels, certain other fishes and to some extent animals, including man) and cleansing. The olfactory function depends on the fact that, in man, odours and flavours must go into solution before perception is possible; the ciliary streams of mucus help not only by conveying the stimulus to the olfactory area, but by removing interfering debris. In cleansing, cavities with rigid walls, such as the nasal fossæ and paranasal sinuses, rely on ciliary action for the removal of debris and bacteria from their lumen; in collapsible cavities, such as the pharynx, muscular walls are able to expel intruding substances, and no cilia are required. They may not be able to deal with

relatively large objects and then some other mechanism, such as sneezing or coughing, may be needed. In man, cilia line the greater part of the respiratory tract. They are absent from the extreme anterior part of the nasal fossæ and the air vesicles or atria of the lung, but are not needed, as these regions can be cleared effectively by a drag on the mucus covering their surfaces. For normal ciliary action a covering of mucus is necessary and this must be of the right viscosity and quantity. Temperature changes have little direct effect on ciliary action, though they may cause an increase or reduction in mucus with consequent ill effects. The cilia continue to work during sleep and for some time after the death of the body as a whole. The exact reaction of the medium in which cilia are immersed is not vital to their action, but the nature of the tissue fluids is extremely important for the welfare and function of the ciliated cells, the two essentials being the presence of the correct proportion of elements and the correct reactions of the fluids. Change of position of the subject (and so variations in the gravity factor) has no appreciable effect on the rate of ciliary streams. The rate of progress is estimated to be two centimetres a minute in the nose and 0.25 centimetre per minute in the bronchi; in the cat's trachea a rate of 3.5 centimetres in one minute has been found. The pathways of ciliary streams are fixed and unchangeable: in the sinuses they are all towards the ostium; in the trachea there is a serpentine movement at the bifurcation, and when the larynx is reached the track is towards the posterior commissure. Cilia have considerable powers of recuperation and ciliary epithelium may regenerate, as after removal of the lining of a sinus; but this must not be relied upon, particularly if scar tissue forms in the sub-mucous layers. Disordered action of the cilia results from drying, as in the early stages of the common cold, or because of an unduly dry atmosphere, the administration of atropine, atrophy of the nasal mucosa and desiccating agents locally applied; from epithelial swelling due to a rise of pH or an excess of sodium, or from epithelial shrinkage due to excess of potassium or calcium; from mechanical blockage of nasal fossa, sinus ostium or bronchus; from interruption in the ciliary stream at one point, either temporarily or permanently; from certain drugs—atropine in excess, thymol and most antiseptics except the silver group, perhaps strong concentrations of cocaine—glycerine, oils and even so-called physiological saline solution; from alterations in the reaction of the medium, as already mentioned.

The practical conclusion drawn by Negus from these facts is that to preserve ciliary action and to assist its highly important function of resisting infection one must be acquainted with all the factors that we have touched on and take such measures in the prevention and treatment of disease as appear of assistance to physiological processes. Thus the blanket of mucus must not be washed away by nasal douches, nor must it be made too viscid by concentrated glycerine or too liquid by excessive use of potassium iodide. The secretions must not be dried by hypertonic solutions, by excessive use of amphetamine or atropine, or by residence in an inefficiently conditioned building. Secretions must not be allowed to accumulate in a sinus or bronchus; they must be removed, if excessive, by washing out or aspiration. No drugs must be employed, except for brief periods, which have a toxic effect on the mucosa; such are cocaine, thymol and most powerful antiseptics. Obstruction to ciliary streams must be cleared, whether a plug of coagulated mucus in the ostium of the maxillary sinus, a foreign body, or a mass of new-growth in a bronchus; similarly a septal deviation may need correction. If an operation is performed in an area covered by ciliated epithelium, every care must be taken to avoid permanent damage. The reactions of the secretions must be regulated where possible to facilitate free action; a pH just above neutral appears best, and for this reason spray solutions are made slightly alkaline. The alkali reserve of the body may require correction on occasion. These points are all important and it should not be difficult to keep them in mind; the reward for their observance should be efficient ciliary action with the resultant physiological and protective advantages.

¹ Thorax, March, 1949.

Abstracts from Medical Literature.

PATHOLOGY.

Boeck's Disease (Boeck's Sarcoid).

JULIUS ROSENTHAL AND IRWIN FRIGIN (*Archives of Pathology*, June, 1948) report four cases in which autopsy showed lesions of Boeck's disease and discuss the pathological observations. In spite of the varied clinical course, the lesions resembled one another in many respects in the acute as well as in the healing stages. The authors state that healing of these lesions may occur in several ways, including complete regression. However, fibrosis and hyalinization without calcification were seen in all the cases presented. It is therefore postulated that this is a common form of healing in cases of this disease. The healing lesions themselves, particularly in the spleen and lymph nodes, may be sufficiently characteristic to suggest the diagnosis of Boeck's disease, which should be corroborated by the finding of more acute lesions in other organs or tissues and by the clinical facts. Although at many points this disease resembles tuberculosis, nevertheless its causation and pathogenesis have not been definitely established. Morphologically, the lesions of Boeck's disease can be differentiated from other granulomata, including those of classic tuberculosis, both in the acute and, in many cases, in the chronic or healing stages. In the acute stage the predominance of histiocytes occurring in discrete tubercles without any marked accompaniment of lymphocytes and without necrosis is characteristic. In the healing and healed stages the fibrosis and the marked tendency toward hyalinization within the tubercles, without calcification, and the retention of occasional outlines of tubercles in hyalinized areas are suggestive of Boeck's disease.

The Mechanism of Intervertebral Disk Protrusion.

F. H. LEWEY (*Surgery, Gynecology and Obstetrics*, May, 1949) states that anatomical and pathological investigations of 169 disks removed at operation and 20 controls indicate that the mechanism of intervertebral disk protrusion is not uniform. Three conditions are described which differ widely in their mechanism and their surgical prognosis. They are as follows. (a) The bulging disk without a rent in the annulus fibrosus and without detachment of the disk from the bone. Material removed by incision of the disk contained normal cartilage lamellae. (b) The herniated disk. Traumatized disk lamellae, necrotic or liquefied, are protruded through a rent of the annulus fibrosus into the spinal cavity, where they may encroach upon and over-extend a posterior root. Herniation of the nucleus pulposus is the exception rather than the rule. (c) The slipped disk, in which the trauma involves the cartilaginous epiphyseal plate and which is sometimes accompanied by a chip fracture of the vertebral rim. This frees the disk from its anchorage and permits an eccentric portion of its posterior circumference to slip backward. A

posterior root may become hooked up over the protrusion. The sharp bony edges of the fracture may secondarily rupture the slipped disk. It is explained that an individual constitutional disposition may be responsible for this type of lesion. This condition is visible in the X-ray picture. No indication of primary disease of the disk could be detected. Trauma appears to be the only cause of herniation or slipping of the disk. The results of incision and dismemberment of a bulging disk are so poor as to suggest that in the 66% of these patients not benefited by operation, the bulging disk was not the cause of the sciatic syndrome. The inference is that the bulging disk should not be removed unless it clearly involves a root. The results of simple removal of the herniated disk are so satisfactory that there seems to be no need for further improvement of the operative technique. Operation on the slipped disk gives good to fair results in about one-half of the persons operated upon; this fact suggests that there is still room for improvement. The question is discussed of the conditions under which thorough evagination of the disk may be indicated and when filling of the intervertebral space with bone chips or spinal fusion may be useful.

Diffuse Plasmocytosis with Protein Crystals in the Kidneys.

H. SIKL (*The Journal of Pathology and Bacteriology*, April, 1949) reports that in a female, aged fifty-seven years, who had been suffering for three years from progressive hyperchromic anemia resistant to liver therapy, sternal puncture disclosed the presence of plasma cells and the results of tests for Bence-Jones proteinuria were positive. A tentative diagnosis of multiple myeloma was made, although no tumours could be demonstrated by X-ray examination. At post-mortem examination, diffuse plasmocytosis of the bone marrow was found, with foci of the pathological cells in the spleen, liver, kidneys and lymph nodes. Examination of the kidneys showed a particularly interesting condition, in that many of the tubules and most of the epithelial cells of the proximal convoluted tubules contained protein crystals. The author states that this is the fourteenth case in which this finding has been recorded, though not in all of them was the presence of myeloma established.

Functioning Tumours of the Ovary.

EMIL NOVAK (*The Journal of Obstetrics and Gynecology of the British Empire*, December, 1948) presents the correlated pathological and clinical study of 43 cases of dysgerminoma, 51 of arrhenoblastoma, and 161 of granulosa-cell tumour and thecoma. The probable origin of dysgerminoma from cells dating back to the early undifferentiated stage of gonadal development explains why this tumour type produces no endocrinal effects. As regards masculinizing tumours, our ideas as to the histogenesis show an increasing departure from Meyer's simple concept of an origin from vestiges of masculine-directed cells persisting in the medullary portion of the ovary. This would still seem adequate in the explanation of arrhenoblastoma, a designation which includes all possible histological gradations of testicular structure reproduction,

always imperfect and often so highly abortive as to be almost unrecognizable. The theory does not, however, explain the masculinizing groups spoken of under such designations as virilizing lipoid tumour, adrenal-cell tumour, masculinizing luteoma, and masculinoviblastoma. These seem better able to be explained by invoking the factor of the differentiating potency of the gonadal interfollicular mesenchyme. It seems probable that the histogenesis is a varied one, and that at least some members of this group are of definitely adrenal character, with a probable origin from adrenal-cell embryological inclusions in the ovarian area. The increasing accent on the role of the mesenchymal differentiating potency has been exemplified also in the explanation of the histogenesis of granulosa-cell and theca-cell tumours. Meyer's theory of an origin from granulosa-cell rests seem inadequate, and we must go back to a progranulosa and prothecal mesenchymal phase for the explanation of the feminizing tumour. Such tumours may develop along either epithelial (granulosa) or connective tissue (thecal) lines, but they often show a mixture of both, justifying the designation of granulosa-thecoma. Perhaps a more inclusive designation for the whole group would be feminizing mesenchymoma. The not uncommon luteinization of these tumours is usually partial, but in the occasional case is complete, and in this case the term luteoma has its clearest justification. In the present state of our knowledge it is unwise to apply this name to any of the masculinizing group of tumours. Finally, the clinical characteristics of tumours of the above-mentioned groups are discussed, with chief reference to their endocrine effects. The appended bibliography includes not only papers referred to in the text, but also a selected list of others bearing on the general subject.

Mechanisms of Leucopenia with Inflammation.

VALY MENKIN (*Archives of Pathology*, August, 1948) states that there is present in exudates, particularly those that are alkaline in nature, a leucopenic component closely associated with the globulins of the leucocytosis-promoting factor. This leucopenic component is thermostable. This distinguishes it from the thermostable leucopenic factor previously described as recovered from acid exudates. The leucopenic component of exudates associated with the globulins of the leucocytosis-promoting factor seems to be a product of a protein denaturation following the initial injury of cells with the onset of inflammation. Aging the leucocytosis-promoting factor induces the further production of this leucopenic component, presumably by spontaneous denaturation. The formation of this factor tends to reduce the potency of, or even to inactivate, the usual leucocytosis-promoting factor, the factor which accelerates the discharge of polymorphonuclear leucocytes into the blood-stream. To render the leucocytosis-promoting factor extracted from freshly withdrawn exudates more effective, the leucopenic component, particularly that found in alkaline exudates, is eliminated in the scheme of extraction of the leucocytosis-promoting factor. Earlier studies have demonstrated that a thermostable leucopenic factor is present in exudates.

The knowledge that the thermolabile leucopenic component of exudates is in combination with the thermostable one helps in one's understanding of the mechanisms of leucopenia with inflammation. The initial leucopenia induced by the thermolabile leucopenic component of exudates affects primarily the mononuclear type of white cells and to some extent the polymorphonuclear leucocytes. The term "leucopenin" is suggested for this additional leucopenic component concerned in the mechanism of leucopenia with inflammation.

Lamb's Excrescences.

F. R. MAGAREY (*The Journal of Pathology and Bacteriology*, April, 1949) describes the results in 250 routine autopsies of the examination of the mitral valve for the filiform tags known as Lamb's excrescences. They were present in 85% of cases. Their incidence increased with age; they were not found in the 22 subjects below the age of one year, but were present in all of the 75 subjects over the age of sixty years. They were not associated with any particular disease, and the author suggests that they are a manifestation of wear and tear—part of the normal aging process of the valve. The structure of these excrescences is described and their method of formation traced. They are shown to be the result of the organization of partially attached deposits of fibrin on the surface of the valve. Some fibrin deposits were fully attached and lying flat on the auricular surface of the cusps, where they were becoming organized. This process appeared to occur repeatedly, leading to gradual thickening of the cusps. In mitral stenosis, deposits of fibrin undergoing organization were found on the surface of the valve, including the angles between the cusps. It is suggested that organization in this situation contributes to the progressive development of the stenosis.

MORPHOLOGY.

Nerve Supply of Elbow Joint.

E. GARDNER (*The Anatomical Record*, October, 1948) has studied the nerve supply of the human elbow joint in dissections of adult joints and in serial sections of foetal joints. He states that the articular nerves are derived from the musculo-cutaneous, median, ulnar and radial nerves. The musculo-cutaneous nerve supplies the periosteum of the humerus and the anterior region of the capsule. Twigs from its articular branch anastomose with others from the radial and median nerves. The median nerve supplies the antero-medial region of the capsule and overlaps the area supplied by the musculo-cutaneous nerve. A small filament from the volar interosseous nerve supplies the postero-inferior region of the capsule and the adjacent portion of the ulna, and extends proximally almost as far as the fat pad along the lateral edge of the olecranon process. The ulnar nerve supplies the postero-medial region of the capsule and the neighbouring portions of the humerus and olecranon process. It overlaps the area of distribution of the radial nerve. The radial nerve, by way of

its branch to the anconeus and occasionally from other branches, such as the ulnar collateral nerve, supplies the postero-lateral region of the capsule, the neighbouring portions of the humerus and olecranon process, and the fat pad; it overlaps the area supplied by the ulnar nerve and probably by the median nerve. Another of its articular branches ramifies in the surface of the annular ligament and anastomoses with a branch from the musculo-cutaneous nerve. There were more nerve fibres in the anterior region of the capsule than elsewhere in the joint, and many of these appeared to be confined to the fibrous layer of the capsule. The majority of nerve fibres supplying the joint were closely associated with the blood vessels supplying the capsule, epiphyses and fat pad.

Spinal Origin of Gudden's Commissure.

H. CHANG AND T. C. RUCH (*Journal of Anatomy*, January, 1949) report a previously undescribed component, of spinal origin, in the ventral supraoptic decussation (Gudden's commissure). They state that the existence of this system of fibres alters our conception of the functional significance of Gudden's commissure, which is based on the belief that it serves as an interconnection between the medial geniculate bodies or inferior colliculi of the two sides. Degenerated fibres were found in Gudden's commissure after transection, hemisection or antero-lateral chordotomy at various levels of the spinal cord. After spinal lesions some of the ascending degenerated fibres in Gower's fasciculus can be traced upwards to the anterior end of the mid-brain, where some of them pass through the dorsal aspect of the *basis pedunculi*, the medial geniculate body, and the space between these two structures, to join the medial border of the optic tract. After crossing in the ventral supraoptic decussation of Gudden, the degenerated fibres turn back along the medial border of the optic tract of the opposite side and finally disappear into the region of the *nucleus pregeniculatus* and the region beneath the medial geniculate body. None of these fibres was observed terminating in the hypothalamus or the *globus pallidus*, nor did they appear to traverse or to end in the medial geniculate body of the side opposite to the lesion.

Bone from Transplanted Marrow.

C. A. PFLEFFER (*The Anatomical Record*, October, 1948) transplanted bone marrow from the femur to the anterior chambers of the eyes of normal female and normal and castrated male mice. The normal females and half each of the normal and castrated males received 16.6 microgrammes of oestradiol benzoate weekly. At autopsy after sixty days, organized bone had formed from the marrow transplants in the females and in both intact and castrated males. The grafts did not "take" as well in the normal as in the castrated males, but the presence of oestrogen did not increase the number of "takes" or influence the development of bone in the grafts in either case. To eliminate the possibility of stimulation by something in the anterior chamber of the eye, marrow grafts were made into the testis in 20 males and subcutaneously into the ear in

another 20 males. In the former site resistance to grafting is very slight, while in the latter it is rather high. Half of the animals in each group received 16.6 microgrammes of oestradiol benzoate weekly, and all animals were submitted to autopsy after seventy days. The grafted marrow reticulum cells formed bone in the testis and did so equally well whether the host had received oestrogen or not. The bone was surrounded by a typical endosteum with numerous osteoblasts and occasional osteoclasts. Immediately outside of this was a layer of loose connective tissue containing numerous plasma cells. The grafting sites in the ears were not found. Presumably the marrow reticulum cells had become tissue wandering cells and had migrated from the area. It is concluded that where resistance to grafting is low, marrow reticulum cells form bone. A discussion is presented of what limits medullary bone formation and how it is affected by oestrogen.

Placenta Birthweight Ratios.

J. G. SINCLAIR (*The Anatomical Record*, October, 1948) has collected data to see whether any measurable correlations of placental structure or weight with birthweights could be observed. He states that the human placenta undergoes microscopic changes during gestation, which increase its capacity to transfer metabolites and, therefore, to compensate for the fact that it grows much more slowly than the fetus. At birth placenta still have a considerable range of microscopic structure. This structure in different placenta corresponds to the ratio of placental weight to birthweight. Relative immaturity in the placenta corresponds to a high ratio and relative maturity to a low ratio. The lowest ratio reached is 0.064 for most classes of full-term placenta. Both the placental weight and ratio increase with birthweight when distributed by placental group classes, the increase being linear for all full-term births. Prematurity and post-maturity are both characterized by high ratios. Malposition, indicated by a marginal cord, also corresponds to a smaller than normal baby and a higher placental ratio.

Anomalous Renal Artery.

E. S. CRELIN (*The Anatomical Record*, October, 1948) describes the finding in an adult male cadaver of an anomalous artery, which was found to arise from an interlobar artery within the right kidney, pierce the antero-lateral surface of the renal capsule, descend inferiorly over the anterior surface of the psoas muscle, and terminate by an anastomosis with the right internal spermatic artery six centimetres above the level of the abdominal inguinal ring. He states that Bremer (1915) recognized the presence of a periaortic plexus made up of the anastomosis of three sets of segmental arteries arising from the primitive aorta, and assumed that it was possible for any one of these segmental vessels and their interconnecting branches to persist. To the author it seems plausible that in the present case the anomalous artery was a retained interconnecting vessel between the renal and internal spermatic arteries. The possibility that the anomalous artery arose post-embryologically was considered untenable.

British Medical Association News.

MEETING OF THE FEDERAL COUNCIL.

A MEETING of the Federal Council of the British Medical Association in Australia was held at the Medical Society Hall, Albert Street, East Melbourne, on January 16, 17, 18, 19 and 20, 1950, SIR VICTOR HURLEY, K.B.E., C.B., C.M.G., the President, in the chair.

Representatives.

The following representatives of the Branches were present:

New South Wales: Dr. A. J. Collins, D.S.O., M.C., Dr. W. F. Simmons, Dr. H. R. R. Grieve, Dr. A. C. Thomas.
Queensland: Dr. A. E. Lee, Dr. H. W. Horn.
South Australia: Dr. R. J. Verco, Dr. L. R. Mallen.
Tasmania: Dr. T. Giblin, Dr. J. L. Grove.
Victoria: Sir Victor Hurley, K.B.E., C.B., C.M.G., Dr. H. C. Colville, Dr. C. Byrne.
Western Australia: Dr. F. W. Carter, Dr. Leigh Cook.
 Dr. A. C. Thomas acted as substitute for Dr. A. J. Murray, O.B.E., who was unable to attend.

Minutes.

The minutes of the meeting of the Federal Council of July 22, 23, 24 and 25, 1949, which had been circulated amongst members, were taken as read and signed as correct.

Congratulations to Sir Victor Hurley.

Dr. A. J. Collins proposed a motion of congratulations to Sir Victor Hurley on the honour of knighthood which he had received from His Majesty the King. He said that the award had given the greatest satisfaction to members of the medical profession throughout Australia. Never before in his experience had satisfaction of this kind been so widespread. He referred to Sir Victor Hurley's war service and to the other high offices which he held. The motion was seconded by Dr. H. C. Colville, who remarked that he had already spoken to a similar motion at a meeting of the Victorian Branch Council. The motion was put to the meeting and carried with acclamation. Sir Victor Hurley expressed his appreciation of the remarks of Dr. Collins and Dr. Colville.

Election of Office Bearers.

Only one nomination for the office of President for the ensuing twelve months had been received, that of Sir Victor Hurley, who was declared elected.

One nomination for the position of Vice-President had been received, that of Dr. A. J. Collins, who was declared elected. Dr. W. F. Simmons was the only nominee for the position of Honorary Treasurer. He was elected.

The Retirement of Sir Henry Newland.

At its meeting in July, 1949, the Federal Council discussed the establishment of a fund to commemorate the services of Sir Henry Newland to the medical profession in Australia. It was resolved on that occasion that an oration to be known as the Henry Simpson Newland Oration should be delivered at all future sessions of the Australasian Medical Congress (British Medical Association), and that a fund should be established for a prize in surgery on similar lines to the Jacksonian Prize of the Royal College of Surgeons of England. It was also decided that further consideration should be deferred until the first meeting of the Federal Council for 1950. It was decided that subscriptions to the fund should be invited, and that a special account should be opened. The view was expressed in discussion that the prize in surgery when established should be open for competition amongst graduates of Australian universities. Subscriptions would be invited by a letter signed by the President.

The Secretariat.

Reference was made to a notice of motion by Dr. Charles Byrne at the meeting of August 12, 1948, in regard to the establishment of a full-time secretariat for the Federal Council. It was decided that consideration should be deferred.

Finance.

The financial statement and balance sheet of the Federal Council for the year ended December 31, 1949, were received and adopted. The Australasian Medical Congress (British

Medical Association) Accumulated Fund Account was also adopted.

The contributions of the Branches for 1950 were noted, and Dr. W. F. Simmons gave an estimate of the probable expenses up to December 31, 1950. He thought that possibly four meetings might be held.

Reference was made to grants to the smaller Branches for organization purposes. The General Secretary reported that the Western Australian Branch had made an application for a grant of £455 from the Organization Fund on account of medico-political expenses incurred during the year ended December 31, 1949. It was resolved that this grant should be made.

The Federal Independence Fund was discussed and a statement regarding it was explained by Dr. W. F. Simmons. The statement was received and adopted. Payment for certain expenses incurred by the Victorian Branch and by the Queensland Branch was authorized, and the Western Australian Branch was granted £500 for expenses incurred in the publicity campaign during 1949.

It was noted that Mr. R. R. Sholl and Mr. T. W. Smith, who had acted for the Victorian Branch in connexion with the appeal to the High Court regarding the *Pharmaceutical Benefits Act*, had been elevated to the Bench. The Federal Council extended its congratulations to Mr. Justice Sholl and Mr. Justice Smith.

Medical Officers' Relief Fund (Federal).

Dr. W. F. Simmons, on behalf of the trustees of the Medical Officers' Relief Fund (Federal), presented an interim financial statement for the six months ended December 31, 1949. Dr. Simmons pointed out that the fund was gradually dwindling, and that loans still outstanding amounted to more than £1500. The report was adopted.

The Federal Medical War Relief Fund.

Dr. W. F. Simmons, on behalf of the trustees of the Federal Medical War Relief Fund, presented a report for the half-year ended December 31, 1949. During this period thirteen benefactions had been paid, two from New South Wales, eight from Queensland, two from Victoria and one from South Australia. Payment of these benefactions had necessitated calling on capital moneys and would continue to do so, as the income from investments was insufficient to meet the payments.

International Cardiac Congress.

A copy of a letter by Dr. Paul D. White, of Boston, Massachusetts, was received from the New South Wales Branch. Dr. White suggested that the Federal Council should appoint an official delegate to the International Cardiac Congress, which was to be held in Paris in the summer of 1950. Dr. J. Kempson Maddox was appointed representative of the Federal Council.

International Congress of Radiology.

An invitation was received from Dr. Ralston Paterson, President of the sixth International Congress of Radiology to be held in 1950, for the appointment of an official representative of the Federal Council. It was resolved that Dr. Colin Macdonald, of the Victorian Branch, should act as representative.

All India Medical Conference.

The General Secretary reported that the President of the Federal Council had received a notification from Dr. G. Ghosh, chairman of the scientific section, announcing that the twenty-sixth All India Medical Conference was to be held at Allahabad on December 27 to 29, 1949, and that the President had sent a letter conveying fraternal greetings.

A Letter of Appreciation.

A letter was received from the New South Wales Branch, which sent a copy of a letter received by it from the North-Eastern Medical Association of New South Wales, expressing appreciation of the Federal Council's efforts in the past and pledging its continued support in the future.

Federal Minister for Health.

It was noted that the President of the Federal Council had written to the Right Honourable Sir Earle Page, M.P., offering the congratulations and good wishes of the Federal Council and of the medical profession throughout Australia on his appointment as Minister for Health. Sir Earle Page had acknowledged the letter.

Australasian Medical Congress (British Medical Association).

Seventh Session.

The General Secretary reported that the following had accepted invitations to become vice-presidents of the seventh session of the Australasian Medical Congress (British Medical Association): Major-General F. Kingsley Norris, Dr. Harold R. Love, Dr. W. Keveall McIntyre, Dr. E. Britten Jones, Dr. D. H. E. Lines.

The General Secretary reported that the following names had been submitted by the Executive Committee for election by the Federal Council as honorary members of the seventh session: Dr. J. G. Hunter; the Reverend John Flynn, O.B.E.; Professor F. J. Browne, University College Hospital, London; Dr. Eaton, Mayo Foundation; Professor Ida Mann; Professor Douglas Guthrie, University of Edinburgh; Professor William White, Assistant Professor of Journalism, Wayne University, United States of America; Dr. Clagett, of Rochester, Minnesota; Dr. A. B. Carvosso, Brisbane; and Dr. E. W. Kerr Scott, Brisbane. These nominees were elected. It was pointed out that Dr. Carvosso and Dr. Kerr Scott, of Brisbane, had been members of the medical congress held in Brisbane fifty years earlier.

The General Secretary announced that an invitation had been sent to the Parent Body to send representatives to congress, but that so far no reply had been received.

In accordance with Regulation 4c, Dr. F. Fantl, Assistant Director of the Baker Institute, Melbourne, and Dr. R. N. McCulloch, entomologist, of Adelaide, were approved as suitable for nomination as members of congress.

Dates of Congresses.

A letter was received from the Tasmanian Branch, expressing the opinion that congresses were being affected by the fact that the Royal Australasian College of Physicians and the Royal Australasian College of Surgeons held conferences nearly coinciding with the dates of congresses. The Tasmanian Branch asked the Federal Council to consider whether something could be done to obviate these conditions in the future. Dr. Leigh Cook expressed the opinion that an interval of two years between congresses was too short. Dr. A. E. Lee thought that congresses should be held every three years, and that special bodies should be asked to cancel their annual meetings in the year in which congress was held. The Federal Council resolved that an approach should be made to the Royal Australasian Colleges of Physicians and Surgeons and to special groups, asking for their cooperation in ensuring the success of Australasian Medical Congresses by agreeing to limit their activities in the years in which congresses were held. The Federal Council resolved that, in the event of an agreement of this kind being reached, the Federal Council should hold a session of congress every three years. It was pointed out that such an arrangement would have to come into force after the eighth session of congress, which was to be held in Melbourne in 1952.

Australasian Medical Publishing Company, Limited.

The General Secretary reported that he had received a notice of the meeting of directors of the Australasian Medical Publishing Company, Limited, to be held on September 14, 1949, and also of the thirty-sixth ordinary general meeting to be held on the same date. He had received the directors' report and financial statement.

Publicity.

The General Secretary announced that the Publicity Committee had met on August 19, September 28 and October 12, 1949. These had been only the formal meetings; many informal discussions had taken place by telephone and otherwise.

The Federal Council reappointed the Publicity Committee as follows: Dr. W. F. Simmons, Dr. A. J. Collins, Dr. H. R. R. Grieve, Dr. C. Byrne.

The Federal Council placed on record its appreciation of the services rendered by the Publicity Committee in connexion with the 1949 publicity campaign.

A letter was received from the Western Australian Branch, protesting against the action of the chairman of the Western Australian Division of the Australian Red Cross Society in reprimanding Dr. John Watson, director of the Red Cross Blood Transfusion Service of Western Australia, for assisting in the Association's publicity campaign. It was resolved that a letter should be sent to the headquarters of the Australian Red Cross Society, protesting against the action of the chairman of the Western Australian Division of the society.

Reference was made to the short statements which had been broadcast by practitioners in different parts of Australia under their own names, and the opinion was expressed that these had been very valuable. Dr. A. J. Collins said that the lessons learnt by these broadcasts should be on record. It was clear that a publicity campaign should not be over-centralized. He said it was obvious that the central body should lay down principles and give a certain amount of autonomy to local bodies, which should not depart widely from the directions from the centre but interpret them liberally.

Special attention was drawn to the booklet "A National Health Service" and to "The Socialized Medicine Bedside Book". Satisfaction was expressed at the results achieved by both these publications.

The Pharmaceutical Benefits Act, 1947-1949.

The General Secretary drew attention to the steps which had been taken to test the legality of the *Pharmaceutical Benefits Act, 1947-1949*. These were set out in order of their occurrence on the agenda paper. Reference was also made to the High Court judgements, which appeared in *THE MEDICAL JOURNAL OF AUSTRALIA* of October 29, 1949.

The General Secretary pointed out that the Minister for Health had in mind the enactment of legislation to permit the supply to members of the public free of charge of certain life-saving drugs. This had been agreed to by the Federal Council in discussions with the previous Minister for Health, Senator N. E. McKenna. The Federal Council then resolved that it would support the present proposals of the Minister for Health. It appointed a committee to draw up a list of costly life-saving and disease-preventing drugs, that it might hand the list to the Minister when he was met in conference. The committee consisted of the President, Sir Victor Hurley, Dr. A. J. Collins, Dr. F. W. Carter and Dr. J. L. Grove. It was admitted that the list would be tentative, and that it would need to be altered from time to time after the introduction of legislation. The Federal Council also reaffirmed its previous decision to offer the establishment of disciplinary committees within the profession to oversee the working of pharmacy benefits. Later on in the course of the meeting the subcommittee presented a list of drugs, and this was subsequently handed to the Minister.

After conference with the Minister, who pointed out that it would be advisable for representatives of the Federal Council to discuss certain matters with the Pharmaceutical Guild of Australia, a committee consisting of Dr. H. R. R. Grieve, Dr. F. W. Carter, Dr. J. L. Grove, Dr. A. E. Lee and Dr. L. R. Mallen was appointed to confer with representatives of the Pharmaceutical Guild. This committee made a report to the Federal Council, and the report was adopted.

The Federal Council considered the request of the Minister for the appointment of a formulary committee, and it was resolved that the following should be invited to become members of that committee: Dr. F. W. Carter, Dr. Byron Stanton, Dr. A. W. Morrow, Dr. A. J. Collins, Dr. R. J. Verco, and Professor R. H. Thorp, of the University of Sydney.

The General Secretary reported that letters of thanks had been sent to the legal advisers of the Federal Council in connexion with the recent action before the High Court.

Medical Planning.

The General Secretary referred to the National Health Services Act Amendment Bill of October 27, 1949. He said that he had received from the Director-General of Health copies of Statutory Rules, 1949, Number 2, and also regulations under the *National Health Service Act*. An account of the debate in the Senate and the House of Representatives together with the amendments was published in *THE MEDICAL JOURNAL OF AUSTRALIA* of January 14, 1950, at page 58.

A National Health Service.

A communication was received from the Western Australian Branch, suggesting that the Federal Council should approach the Government with a view to the implementation of the positive aspects of the Federal Council's health policy.

A request was also received from the Queensland Branch, recommending that the Federal Council should try to arrange a conference with the Commonwealth Minister for Health, and that it should review the standard of medical practice in Australia. The Federal Council resolved in the terms of the Queensland Branch letter:

That the Federal Council review the standard of medical practice in Australia, and, in association with State Councils, indicate to members the means by which, within the existing forms of medical services, greater efficiency may be attained, with

special reference to increasing the facilities for medical practice, improving post-graduate medical education, and making most readily available to the general public the benefits arising therefrom.

The General Secretary reported that he had received from Dr. A. E. Lee a document entitled "The Improvement of Medical Practice in Australia". This document had been forwarded to the Branches.

The Branches were asked to consider the matter and to submit reports to the Federal Council, setting out their views.

Further reference was made to the booklet "A National Health Service", and it was reported that summaries of the book had been prepared and sent to the Press and also to members for distribution to the Press. The General Secretary reported that he had received a scheme drafted by Dr. R. J. Verco. This had been forwarded to the Branches.

Conference with the Minister.

A conference was held between the members of the Federal Council and the Minister for Health, the Right Honourable Sir Earle Page, F.R.A.C.S. The conference was held on the invitation of the Minister and was entirely informal. In the course of the conference Sir Earle Page gave a general account of the steps which he thought would be initiated by the Government to provide a health service for the people. He asked for general approval of his ideas as far as the Federal Council was able to give it, but he realized that new ground was being broken and that the Council would find it necessary to refer some of the questions to the Branches of the Association. In the same way, he explained, there were some aspects of his proposals which he would have to refer to Cabinet. A detailed account of the conference cannot be given, because the Minister asked that it should be regarded as confidential for the time being. At intervals during his conference with the Federal Council the Minister also met and had discussions with representatives of the Pharmaceutical Guild of Australia and with representatives of the Federal Council of the Friendly Societies of Australia.

In opening the conference, Sir Earle Page said that sound health administration was possible only if both the Government and the individual members of the community assumed fully their own separate responsibilities. The electors had rejected the nostrum of "free medicine"; they had also rejected the trap of a so-called "Welfare State". They had done so because both meant centralization and regimentation of health services.

The object was to reconcile and to coordinate the responsibilities of both the Government and the private individual. It was fundamentally wrong to throw the whole responsibility of private medical and hospital services on the Government. That robbed the community of its independence, made for inefficient administration, created a pyramiding of bureaucratic control and increased costs. Under such conditions there developed quickly in the community a cynical indifference. "Everything is on the Government—so why worry" was an insidious doctrine. It not only affected the patients, but it also affected the administration. Chaos could not be long averted if none was worrying about costs. Eventually it all came back on the taxpayer with the workers hardest hit. Had the scheme of the Chifley Government been fully implemented, an increase in social services tax would have been inevitable.

The present Government's approach would be to provide every incentive both for individual and for community effort. It was prepared to subsidize both. Those who helped themselves would receive the greatest help from the Government.

The conferences that week would be for the purpose of ascertaining the most practical and most efficient way to do this from the practical men and women who, day in and day out, and in fact night out, as well, carried out their duties. The Government aimed to get the best results without unnecessary charges to the taxpayer which were caused by waste and duplication. The aim was steadily to improve the standard of national health as well as the quality of medical treatment. So-called free medicine schemes, which, of course, had to be paid for by the taxpayer, must cause ultimately a deterioration in health and in the character of medical treatment.

It was interesting to observe that the progressive improvements in the standards of medical treatment and of the efficiency of their professions had been effected by the initiative and activity of the doctors, dentists, chemists, nurses *et cetera* themselves. For instance, the doctors formed their own Colleges of Physicians and Surgeons, which conferred diplomas whose quality was so distinctive as to

force their recognition as a State mark of capacity to practise.

The chemists' and dentists' position was similar. The community had seen a steady rise by their own initiative in the status of the dental and pharmaceutical professions and of the quality of service through their own organizations and their own hall-mark of efficiency. The nursing organization likewise, established since the days of Florence Nightingale, had steadily improved its status by its own activity.

It was worth while remembering also that voluntary organizations had first founded hospitals and benefit societies to take care of the sick years before the various governments had thought of doing so. To such organizations as those it was still necessary to look for a continued improvement in standards.

If incentive and individual interest were removed by making everyone government servants, the efforts of those organizations would be sterilized and decay would set in.

The Government believed in the decentralization of health administration and medical treatment. It therefore would work in full cooperation with the States and whenever possible would use their administration and the local authorities they had created as the responsible agents through which Commonwealth help would be given. The Government's immediate aim was to restore the autonomy of hospital managements on the spot, and they would discuss methods whereby this could be accomplished.

In hospitals completely dependent upon government subvention and completely controlled by government administrative officials, the professional staffs became virtual government employees, and this must lead to waste and inefficiency. Could they reverse this trend? The hospitals had never been better conducted than when they were fully controlled by local committees. The principle of government subsidy had been sound then, and it would be sound again. But to meet existing conditions the subsidies would have to be reviewed. The best antidote to laxity in administration was the cultivation of local pride and the stimulation of local effort.

This stimulation of local effect was the best encouragement to private benefactions. Medical research both in Australia and overseas owed much to private benefactors. In Great Britain in recent years there had been the magnificent Nuffield foundations, and in the United States such great projects as the Rockefeller Foundation. In Melbourne they had the Walter and Eliza Hall Bequest, which provided the first medical research laboratory in the country, and the Wilson Bequest, which helped the Melbourne Hospital, and in Sydney they had the Kanematsu Institute, the Fairfax Institute, the Bosch Benefaction and many others.

The private benefactor should be encouraged. If they were to remain a Christian community, they should always give every encouragement to the charity impulse. No individual could have a greater public monument than by making a private contribution to the work of medical research, and the Government itself would be encouraged to make substantially larger contributions to such research than had been made in the past.

Sir Earle Page believed the time was ripe for a great nation-wide drive to bring home to the general public ways and means in which they could be positive partners in the war on ill health. Instead of being passive bystanders, they should become active helpers. The Government wanted them, instead of leaving the hospital and health problems to the Government, to make those problems their responsibility as well. Such a drive could dramatize the story of the work being performed by public hospitals, research workers, the medical profession, and nursing and hospital staffs in their attempts to face such problems as poliomyelitis, tuberculosis and cancer, as well as to educate the public regarding the needs of hospital finance.

Many examples of the benefits of self-help had been shown by various organizations in Australia. Notable were the achievements of the friendly societies of Australia, the hospital insurance schemes, the various medical benefits clubs, the Red Cross Society, the Country Women's Association, women's auxiliaries, and many others. The results achieved by the joint efforts of those bodies, acting either by themselves or in joint government or local effort, pointed the way to future lines of action.

The public health centres, for instance, and the various parents' committees, operating with State authorities in providing proper mid-day meals for school children, and nursery centres were such examples.

Continued cooperation between the medical profession, the hospitals and health administration and the public

brought into line the provision of diagnostic clinics and so on. The existence of such joint activities would lead to much closer cooperation between the practising medical profession and government health administration.

The Government believed that the practical experience of the practising doctors should be available at all times to the Government and its administrators. Medicine called for day-to-day study and application. Its problems could not be solved by remote control from a government office.

Sir Earle Page said that he proposed to throw the Commonwealth Health Department wide open to such cooperation. The medical profession, universities, pharmaceutical profession and nursing profession not only would be consulted, but also would be invited to nominate panels of advisers to keep in touch with day-to-day problems of administration.

Sir Earle Page thanked the professions for their generous offers of voluntary cooperation. They had accepted the only challenge that really mattered, the challenge to improve existing standards. His object was to bridge this stream of spontaneous cooperation so that the professions and the community would be united in a joint effort for the common good.

The Government's policy would be to spend government money just as prudently as they expected local committees to spend their own money. They would not stint, but they expected to be only partners, not the sole carriers of the burden.

The Australian people were by nature fiercely independent. They did not want to become a race of social dependants. The new-fangled notion that was called Statism, in which the State dominated the individual citizen, was not compatible with the Australian character. The people wished to stand on their own feet. They did not wish to be eternally propped up by the Government, but the public did expect the Government to step in and help when the burden became too onerous. That was society's obligation to its fellow members. There was dignity in that—there was none in the servile State. Health was a great cooperative enterprise calling for contributions from everyone.

Sir Earle Page looked to the professions, to the mothers, the friendly societies, the trades unions, the local bodies and the public at large to play their parts. He pledged those present that the Government would take up its full share. The greater the contribution by voluntary effort, the greater would be the Government's contribution and the greater the final results.

In the early part of the conversations, discussion took place around the proposal that the Government should supply free of cost to the people certain expensive and life-saving drugs. The list already referred to was handed to the Minister and several aspects of it were discussed. After conference with the representatives of the Pharmaceutical Guild of Australia, it was pointed out that although medical practitioners would order these drugs on their own prescription forms, they would be ordered as single drugs and would not be compounded into mixtures. Certain of the drugs would be classed as dangerous drugs, and for this reason two copies of the prescription would be required. The view was expressed that on this account, and also because the prescription was the authority for the pharmacist to supply the drug and the evidence that he would require before he could apply for payment, all prescriptions should be written in duplicate.

A free and frank discussion took place on the different aspects of a health service. The question of hospital accommodation was considered, and the service to the individual was discussed in relation to hospitals, voluntary organizations and private practice. The scheme outlined by the Minister broke certain new ground, and it was pointed out to him that the Federal Council would have to refer different aspects to the Branches before the Association's attitude could be defined.

Towards the end of the proceedings the Federal Council received a request from the Minister for the appointment of a committee on which he might call for advice and assistance in any matters concerned with the drafting of legislation in connexion with the proposed national health service. It was resolved that approval should be given to the formation of such a committee, and it was decided that it should be composed of the executive officers of the Federal Council.

Before the conference broke up, Sir Victor Hurley expressed his appreciation of the Minister's frankness and of the opportunity that had been given for the free expression of opinion. Sir Earle Page said that he welcomed the opportunity of putting his views before the medical profession and the other bodies with which he had consulted.

British Medical Association.

British Commonwealth Medical Conference.

The General Secretary reported formally that he had attended the first annual meeting of the British Commonwealth Medical Conference at Saskatoon, Canada, on June 7 to 9, 1949. He said that a report of the conference had been sent to the members of the Federal Council and to the Branch Councils.

It was noted that the second annual meeting of the conference would be held at Brisbane on May 23 to 25, 1950. The General Secretary said that he had not heard a great deal from London about the Brisbane meeting, and he pointed out that not much time was left in which to arrange a programme. Later on the subcommittee appointed to make arrangements for the meeting met and drew up a tentative programme.

British Medical Journal.

The General Secretary reported that he had received a number of inquiries from the editor of the *British Medical Journal* in regard to the acceptability of advertisements for vacant medical appointments in Australia. He referred to the difficulty in the making of decisions in regard to advertisements, and said that that difficulty was also experienced by the Editor of THE MEDICAL JOURNAL OF AUSTRALIA. He pointed out that though standards had been laid down in one or two instances, difficulty often arose because of varying conditions in the different States. Some discussion took place in which the Editor of THE MEDICAL JOURNAL OF AUSTRALIA was invited to take part. The Federal Council decided that when difficulty arose, advertisements might be referred for an opinion to the executive officers of the Federal Council.

The General Secretary referred to the arrangement by which students at Australian medical schools were allowed to purchase the *British Medical Journal* at a reduced rate of subscription. He reported that extensive use was made of this provision, and at the request of the Queensland Branch it was decided that the Parent Body should be asked to make application forms available through Branch offices instead of through the universities.

The Empire Medical Advisory Bureau.

A summary of regulations for post-graduate diplomas and courses of instruction in post-graduate medicine in the United Kingdom was received from the medical director of the Empire Medical Advisory Bureau.

Annual Meeting of the British Medical Association.

The General Secretary reported that a request had been received from the Parent Body for the nomination by the Federal Council of a delegate to represent it at the annual meeting, to be held at Liverpool, England, in July, 1950. This was the first time that such an invitation had been received, and the Federal Council expressed its appreciation. It was resolved that Major-General F. Kingsley Norris should be invited to become the delegate, and that in the event of his being unable to act, Dr. Douglas Thomas should be invited.

Organization of the Profession.

The General Secretary reported that he had paid a visit to the Queensland Branch and had attended its annual meeting on December 9, 1949.

Special Groups.

Ophthalmological Society of Australia.

The General Secretary reported that he had received an invitation from the Ophthalmological Society of Australia (British Medical Association) for the President and members of the Federal Council to attend the annual meeting of that body on October 4, 1949. The President said that he had attended the gathering and had formally opened it.

Section of Aviation Medicine (British Medical Association).

At the meeting of the Federal Council in March, 1948, approval was given for the formation of a special group devoted to the study of aviation medicine. The Secretary reported that there had been a delay in the formation of this group, but that the delay was only temporary.

The National Health and Medical Research Council.

At its previous meeting the Federal Council discussed the grant provided by the Commonwealth Government for medical research, and it was resolved that the Federal

Government should be approached and asked to increase the grant of £60,000 to a minimum of £120,000 for 1950. The General Secretary reported that he had written to the Prime Minister in accordance with this resolution, and had received a reply stating that the Council's letter dealt only with the National Health and Medical Research Council, whereas activity in the field of medical research was being developed by the National University at Canberra, where expenditure on research and scholars was expected to be £45,000 for the current year.

The Federal Council received the report of Dr. W. F. Simmons, its representative, of the twenty-eighth session of the National Health and Medical Research Council held at Canberra on November 16 and 17, 1949. Dr. A. E. Lee asked whether the time was not ripe for renewed consideration of the proposal that the National Health and Medical Research Council should be divided into two bodies, one dealing with public health matters and the other dealing with medical research. It was pointed out in discussion that the allocation of grants for research was made by the full Council on the advice of its Advisory Committee on Medical Research. Sir Victor Hurley said that the Advisory Committee of the National Health and Medical Research Council really functioned as a research council, and he thought that this position should be made regular. He thought it was quite obvious that a grant of £100,000 per annum would need to be increased from time to time. He also referred to the present tendency to develop research at Canberra to the detriment of research at other places. One member of the Council referred to an application made by a metropolitan hospital for a grant towards the establishment of a research institute. Dr. W. F. Simmons pointed out that the funds of the National Health and Medical Research Council had never been used for buildings. The policy of the National Health and Medical Research Council had always been that at least one research unit should be active in each capital city. The Council resolved that the Minister for Health should be invited to reconstitute the Medical Research Council on the basis of a representative from each of the Royal Colleges and the Federal Council, along with a number of other members from panels submitted by the medical schools. It was also resolved that the Minister should be asked to have the grants available for research increased to £100,000 for the first year with a gradual rise to £500,000 according to plans prepared by the National Medical Research Council when reconstituted.

World Medical Association.

The General Secretary reported that he had received from the World Medical Association a series of documents dealing with its activities. Among these were the minutes of a council meeting held in London on October 6 to 9, 1949, and of another council meeting held in London on October 14 and 15, 1949. He also referred to the annual report of the council to the General Assembly. This, with the report of Dr. L. Llewellyn Davey, delegate of the Federal Council to the General Assembly, and the minutes of the third General Assembly, had been distributed amongst members of the Federal Council and was received. The World Medical Association also forwarded a report of a subcommittee dealing with post-graduate medical education, and another document setting out an international code of ethics. The General Secretary made special reference to a confidential report by Dr. P. Cibrle, Assistant Secretary for Europe, on activities of the Red Cross in times of peace. The Federal Council resolved to defer consideration of this until the next meeting.

It was noted that the General Assembly of the World Medical Association for 1950 was to be held in New York, and the Federal Council resolved that the question of sending a delegate of the Federal Council to attend the meeting should be left in the hands of the President and General Secretary.

Contract Practice.

The General Secretary brought to the notice of the Federal Council correspondence that had taken place between the Western Australian Branch and the Australian Workers' Union in Western Australia regarding a contract practice mining agreement at Kalgoorlie.

Salaried Medical Services.

At its previous meeting in July, 1949, the Federal Council appointed a committee consisting of one representative from each State to report on desirable salary standards for all classes of full-time medical appointments. This committee replaced one previously appointed and widened the terms of reference. The committee decided at its preliminary meeting that information needed should be obtained as far

as possible through Branch councils. The information sought covered State Government medical officers, hospital medical officers, university staff appointments, salaries and research workers, medical secretaries, insurance company medical officers and industrial medical officers. It was stated that the information when received would be collated by the Assistant General Secretary of the Federal Council, and that the committee would meet in May, 1950, just prior to the meeting of the Federal Council at Brisbane.

The committee was reappointed as follows: Sir Victor Hurley, Dr. W. F. Simmons, Dr. H. W. Horn, Dr. L. R. Mallen, Dr. Leigh Cook and Dr. J. L. Grove.

The General Secretary reported that correspondence had taken place between the secretary of the Repatriation Department Medical Officers Association, Dr. J. B. Best, and the Federal Council. This included copies of proofs of evidence given before the Public Service Arbitrator in Melbourne, Brisbane and Sydney. The General Secretary also produced a copy of his own evidence. The documents were noted.

Reference was made to a letter received from the Western Australian Branch in regard to a vacancy which had been advertised by the State Public Service Commission of Queensland for a medical officer who was to be engaged in the treatment of leprosy and in research in the disease. The Western Australian Branch held that the salary offered, namely, £970 to £1150 plus a basic wage adjustment, was too low, a view which was held by the other Branches.

The Victorian Branch had forwarded a copy of a letter from the secretary of the Departmental Tuberculosis Committee of the Victorian Department of Health, asking for a copy of the recommendation of the Federal Council regarding sessional fees payable to medical consultants, in order that recommendations might be made to the Minister for Health regarding appropriate fee payable to visiting consultants at bureaux and sanatoria in Victoria.

A letter was received from the New South Wales Branch, advising the Federal Council of the payments being made to the visiting thoracic surgeons to the Randwick Auxiliary Hospital, Sydney. The fees payable were four guineas for a session of two hours and two guineas an hour for subsequent sessions.

It was explained that a thoracic surgeon who submitted a claim had been paid on this basis, but was subsequently informed by the New South Wales Department of Health that the fees payable for attendance were computed on the basis of the rate per three-hour session, broken periods to be paid for proportionately, and that a refund of £8 1s. was due to the department.

In view of the fact that payment was made to the States by the Commonwealth in connexion with its tuberculosis scheme, a communication was forwarded to the Commonwealth Director-General of Health requesting that payment be made at the minimum rate per session or part thereof.

The Medical Examination for Pilots' Licences for Aircraft.

At its previous meeting the Federal Council discussed the correspondence that had taken place between the Victorian Branch and the local officers of the Australian Air Pilots Association. In the examination form the pilot agreed that a medical practitioner, hospital or other medical organization would be free to reveal any information which might assist in assessing whether the pilot met or continued to meet the prescribed medical standard. The pilot declared that he waived all professional confidence and the provision of law as to privilege or otherwise forbidding such disclosure. The Federal Council deferred consideration pending receipt of a reply to its inquiry whether the signing by a pilot of the declaration on the record sheet would be a valid consent to the declaration of information relative to health questions both during the lifetime of the pilot and after his death. The General Secretary reported that he had had correspondence on the subject. He had been advised that the Australian Air Pilots Association had instructed its members to delete from the application for issue or renewal of the medical licence the clause waiving the medical professional confidence. The Australian Air Pilots Association had communicated with the Department of Civil Aviation and had advised the department of its decision. The department had intimated that it would not take proceedings or fail to issue the licence if the clause was deleted.

Repatriation Department.

Medical Benefits for Widows, Widowed Mothers and Orphans of the 1914-1918 and 1939-1945 Wars.

The General Secretary reported that he had received a letter from the Chairman of the Repatriation Commission,

advising in accordance with Clauses 8 and 9 of the agreement that the rates payable to repatriation local medical officers for the year 1949-1950 would be as follows: metropolitan rate £2 2s. 4d., country rate £2 12s. 1d. This information had been sent to the Branches.

War Service Land Settlement Qualification Certificate.

A letter was received from the New South Wales Branch, advising that one of its members was being paid the sum of 10s. for a qualification certificate on Form M 83 in connexion with war service land settlement. The New South Wales Branch also stated that the Senior Medical Officer of the Repatriation Commission in New South Wales had reported that he had not received advice that the fee had been increased to one guinea.

The General Secretary said that a communication had been sent to the Chairman of the Repatriation Commission pointing out that on July 23, 1947, Dr. F. L. Davies, at that time a member of the Federal Council, had interviewed the Deputy Commissioner in regard to the fee payable for the certificate in question and was informed that the fee would be one guinea. The Chairman of the Repatriation Commission had replied stating that at no time did the Commission agree that a fee of one guinea be paid for certificates and that in any case the cost of certificates as to fitness of ex-members of the forces for the purpose of engaging in rural occupations under the War Service Land Settlement Scheme was the responsibility of the States concerned. Actually only one State was concerned, New South Wales, and it was agreed that the matter was one for the New South Wales Branch.

Radiological Services in Repatriation Hospitals.

A letter was received from the Western Australian Branch, enclosing the copy of a communication which had come from the honorary secretary of the Australian and New Zealand Association of Radiologists in Western Australia. This letter was intended to inform the Western Australian Branch of the progress and general terms of negotiations of the Australian and New Zealand Association of Radiologists with the Repatriation Department. The letter then set out in some detail the negotiations and the conclusions that had been reached. The Western Australian Branch thought that the Federal Council should be made aware of the fact that an organization other than the Federal Council was negotiating with the Repatriation Commission. The Western Australian Branch deprecated the fact that negotiations were not being undertaken by the British Medical Association, and thought that the Federal Council should take suitable action. The General Secretary said that he had referred the Western Australian Branch letter to the Branches, and the majority of them had agreed that the Federal Council should be the only body to negotiate medico-political matters. A general discussion took place on the attitude of radiologists to medico-political matters. Dr. C. Byrne thought that the matter should be taken up by the executive officers of the Federal Council with The College of Radiologists (Aust. and N.Z.). It was finally resolved that the matter should be taken up by the executive officers of the Federal Council with the executive of The College of Radiologists (Aust. and N.Z.).

Visiting Specialists to Repatriation Hospitals.

A letter was received from the New South Wales Branch, forwarding the copy of a letter received from the Visiting Medical Officers Staff of the Repatriation General Hospital, Concord. The letter dealt with the question of payment. The Medical Officers Staff thought that the rate of payment should be three guineas for the first hour and one guinea for each succeeding hour or part thereof, and also that two guineas an hour should be allowed for travelling time. During the discussion it was pointed out that an allowance for travelling time was preferable to mileage. When mileage had to be calculated, arguments on the charges were frequent, and mileage travelled did not give a correct idea of the value of the time spent by the medical officer. It was resolved that the matter should be taken up with the Repatriation Commission, with the request that the rate of payment of visiting medical officers to repatriation general hospitals should be three guineas for the first hour plus two guineas for each succeeding hour or part thereof. It was also resolved that payment for travelling time should be in addition to the sessional payment.

The Examination of Applicants for the Invalid Pension.

At the last meeting of the Federal Council a discussion took place on the fees payable to local Commonwealth medical officers for the examination of applicants for invalid

pensions. The Federal Council at that time determined that the fee paid for examination of applicants and the supplying of reports should be one guinea for the examination so made in the surgery, and £1 5s. plus mileage one way beyond two miles if the examination was made away from the surgery. The General Secretary reported that he had communicated this decision to the Director-General of Social Services, but was still awaiting a reply.

Exempt and Temporary Employees of the Commonwealth Public Service.

At the previous meeting of the Federal Council a discussion took place on the fee for medical examination of exempt and temporary employees of the Commonwealth Public Service at the time of employment. Consideration at that time was deferred until further information had been received. The General Secretary reported that he had received a communication from the Secretary of the Commonwealth Public Service Board, stating that the fee payable would be one guinea.

Workers' Compensation Act: Schedule of Fees.

At the previous meeting of the Federal Council it was resolved that unanimous and Australia-wide action should be taken by the medical profession with a view to the payment of adequate fees for all work undertaken under the *Workers' Compensation Acts*. The Federal Council agreed at that time that this should be done, and determined that a copy of the schedule of fees drawn up in respect of the treatment of injured workers entitled to the benefits of the Commonwealth compensation act should be forwarded to the Branches for their comments, and that from the information furnished a model schedule of fees should be drafted and a copy sent to the Branches. The General Secretary reported that this had been done, and the model schedule was before the meeting. The fees were set out in two columns, A and B. Column A contained the highest figure at present current in State agreements, and Column B the present schedule under the *Commonwealth Employees Compensation Act*, drawn up on October 15, 1945, but not yet agreed to. The schedule had been sent to the Branches. The Western Australian Branch thought that Column B was inequitable. The New South Wales Branch was prepared to accept Column A. The Victorian Branch thought that the matter was one for individual State action and that with separate State legislative provision for workers' compensation, unanimous Australia-wide action was not practicable; it was opposed to the laying down of a schedule for the whole Commonwealth. The Tasmanian Branch preferred Column A, and the South Australian Branch sent a long statement and in general was prepared to accept Column A.

The Importation of "Neo-Synephrine Hydrochloride".

A communication was received from the Queensland Branch, recommending that the Federal Government should be approached with the request that the continued importation of "Neo-Synephrine Hydrochloride" in adequate quantities for medical prescription should be permitted. The Queensland Branch letter stated that the present cut to 30% of the present level inflicted an unnecessary hardship. "Neo-Synephrine Hydrochloride" was of the greatest value in spinal anaesthesia. The General Secretary reported that the matter had been referred to the Branches. They had all agreed with Queensland except Victoria. Dr. H. W. Horn moved that the Queensland request should be granted, and Dr. W. F. Simmons added that he thought some proviso should be included to determine whether an actual shortage would exist or not. It was finally resolved that the request of the Queensland Branch be approved, and that representations should be made to the proper Commonwealth department, provided that after inquiry the fact that there was a shortage of the drug was confirmed.

The Australian Advisory Council for the Physically Handicapped.

A letter was received from the New South Wales Branch, forwarding the copy of a letter received from the Coordinating Council of Societies Caring for the Physically Handicapped. The letter stated that a conference was to be held in Tasmania in February, 1950, and it suggested that one representative of the profession for the whole of Australia should be sent to the conference. It was resolved that Dr. T. G. H. Hogg, of Launceston, should be appointed representative of the Federal Council to attend the conference of the Australian Advisory Council for the Physically Handicapped in Tasmania in February, 1950.

The Use of the Metric System in the Prescribing and Dispensing of Medicine.

A letter was received from the New South Wales Branch, forwarding the copy of a letter received from the University of Sydney Medical Society, in which was discussed the suggestion that the metric system should be allowed as an alternative for the prescribing and dispensing of medicines. It was pointed out that the use of the metric system in New South Wales was illegal. The General Secretary said that he had referred the letter to the Branches. The Victorian Branch had replied that the use of the metric system was legal in Victoria. Both systems were used in Western Australia. Tasmania was in favour of the use of the metric system when desired. The Queensland Branch thought that the use of the metric system should be legal. The South Australian Branch reported that the use of the metric system was legal in South Australia. The General Secretary said that he would forward this information to the University of Sydney Medical Society.

The Tariff Board Act.

At previous meetings the Federal Council had discussed the tariff payable on the importation of overseas equipment, and had expressed the opinion that there should be no bar to its importation. The General Secretary pointed out that the application to the Minister for Customs had not been successful. Copies of the tariff had been sent to the Branches, and the Western Australian Branch had expressed the opinion that the Federal Council should object to the ban on the importation of instruments. In discussion it was suggested that the Federal Council should take the matter up with the new Minister. At the same time it was pointed out that it was necessary to be careful in regard to instruments manufactured in Australia. It was finally resolved that the matter should be taken up with the Minister for Trade and Customs.

Australian Post-Graduate Federation in Medicine.

The General Secretary reported that he had received from the Australian Post-Graduate Federation in Medicine a copy of the time-tables as at July 19, 1949, for the years 1949 to 1952 inclusive.

Commonwealth Department of Immigration.

At its previous meeting the Federal Council had received from one of the Branches some adverse criticism on the salary and conditions of employment of medical officers appointed by the Commonwealth Department of Immigration, and it was resolved that inquiries should be made from the Branches in regard to the conditions of service and rates of pay of medical officers in Commonwealth Immigration reception and training centres in their States. The General Secretary reported that apparently these officers were paid the sum of £1262 *per annum* inclusive for a forty-hour week, and they were provided with board and lodging for 30s. a week. No check had been made on the allegation that some of these officers had to be content with the accommodation of one small room. Dr. Leigh Cook pointed out that the Western Australian Branch was gravely concerned with the Immigration Department's set-up on the medical side, because of the risk of the introduction into Australia of new diseases. He quoted one instance in which hookworm had been introduced. It was resolved that the matter should be taken up with the Minister for Immigration.

The General Secretary pointed out that the Federal Council had been asked to do what it could to secure medical practitioners for appointment to immigration camps, and he said that the President of the Federal Council had written a letter which was published in THE MEDICAL JOURNAL OF AUSTRALIA.

Commonwealth Council for National Fitness.

The report of the eleventh session of the Commonwealth Council for National Fitness, held at Sydney on May 5 and 6, 1949, was received.

Emergency Medical Services.

The General Secretary reported that he had received from Major-General F. Kingsley Norris, Director-General of Medical Services, a memorandum dealing with emergency medical services. This had been sent to the Branches. The memorandum was as follows:

1. In the event of a national emergency the staffing of service and emergency hospitals will be at the personnel expense of the peace-time civil hospitals throughout Australia.

2. In the past, at the outset of such an emergency personnel have been diverted from these hospitals in a manner which has produced certain disorganisation within these hospitals and a delay in the achievement of an efficient medical service within the newly raised units.

3. If adequate consideration and planning is not given during peace to such a situation, a similar state of affairs may well arise again.

4. It is understood that a committee under the chairmanship of the Federal Director-General of Health is charged, *inter alia*, with the provision of personnel to meet any emergency arising out of war, but apparently no activity has resulted from this committee.

5. The Institute of Engineers of Australia has offered to the Military Board the formation and support of "Supplementary Reserve Units" consisting of technicians whose qualifications can be used by the army in war without the need of a further technical training. This offer has been accepted by the Military Board.

6. Training in peace for such units would be confined to army subjects necessary to convert them from a civil to a service outlook, and personnel who join these Supplementary Reserve Units are confined to those who are prepared to volunteer and who can be released by the sponsoring organisation in emergency.

7. If the Federal Council, B.M.A., were to consider this problem and produce a satisfactory plan the initiative in the matter may remain with the profession.

8. It is suggested for consideration that a survey be made among the medical, surgical, nursing, ancillary and orderly staffs of the larger hospitals throughout Australia with a view to their organisation during peace in such a manner that complete hospital units could be diverted with a minimum of disorganisation within the parent body and a maximum of efficiency in the new location.

9. This principle was the secret of the rapid success of the mobilised service hospitals within the American Army. While it is realised that this was possible because of the relatively greater personnel within American civil hospitals—such planning in peace time should be possible within Australia by those in a position to do so—members of the practising medical profession with service experience.

Reference was made in discussion to the way in which the Central Medical Coordination Committee functioned during the 1939-1945 war. The work done by this committee had been most satisfactory. It had carried on under the control of the Department of Defence. In 1944 the medical coordination committees were transferred by Regulation Number 67, 1944, of the National Security Regulations to the Department of Health. At its meeting in May, 1944, the Federal Council voiced "the strongest possible protest" against this transfer. The Federal Council also wrote a letter to the Acting Minister for Defence, in which it stated that the Federal Council viewed the transfer "with alarm".

Major-General F. Kingsley Norris attended the meeting of the Federal Council at this stage by invitation of the President, and dealt in some detail with the memorandum. The Federal Council formally approved of the memorandum, and adopted a resolution in which it expressed the opinion that the Central Medical Planning Committee should function under the Department of Defence.

The Commonwealth Scientific and Industrial Research Organization Information Service.

The General Secretary reported that he had received a questionnaire asking for details of the activities of the British Medical Association in Australia for inclusion in a projected handbook of Australian Scientific and Technical Societies and Institutes. The questionnaire had been completed.

Artificial Insemination.

A letter was received from the Queensland Branch, asking for the opinion of the Federal Council in relation to the responsibility of doctors carrying on the practice of artificial insemination. It was pointed out that the subject was a large one, and that many articles by competent authorities had been published from time to time. It was resolved that no action should be taken.

Fee for Certification under the Lunacy Act.

A letter was received from the Western Australian Branch, asking the Federal Council to take the necessary action to implement the payment of a uniform fee throughout the Commonwealth and recommending that the fee should be

£2 12s. 6d. The Federal Council resolved that the fee for certification under lunacy acts should be £2 12s. 6d., and that in those States where that fee was not paid, suitable action should be taken by the Branches to have the fee increased to that amount.

Sir George Wilson.

The Federal Council noted with satisfaction the fact that Dr. T. G. Wilson had received the honour of knighthood from His Majesty the King, and adopted a resolution offering its congratulations to him.

Medical Education.

A letter was received from the New South Wales Branch, recommending the establishment of a standing committee on medical education similar to that of the Parent Body, whose function would be to formulate standards of pre-medical and medical education in Australia, and to keep the Federal Council informed on such matters. The Federal Council after discussion decided to refer the New South Wales Branch letter to the other Branches for an opinion. This matter will be dealt with in a leading article in a subsequent issue of the journal.

The Swedish Medical Association.

A request was received from the secretary of the Swedish Medical Association, asking for a copy of the reply of the Federal Council to the World Medical Association inquiry into the position of the medical profession in Australia and its relation to the State, and whether conditions in regard to medical care in Australia had changed since the report was prepared in 1948. The General Secretary reported that the information had been sent.

Short Service Commissions with the Royal Australian Air Force.

The Victorian Branch forwarded a complaint by one of its members about what was thought to be a breach of contract regarding deferred pay in connexion with a short service commission. The General Secretary was asked to inquire into the matter.

Fee for Examination of Recruits to the Royal Australian Navy.

The Federal Council considered the fee payable for the examination of recruits to the Royal Australian Navy, and decided that the Minister for the Navy should be informed that the Federal Council was of the opinion that the fee should be £1 11s. 6d.

Library Facilities.

A communication was received from the New South Wales Branch, requesting the Federal Council to give its approval and support to a proposed visit overseas in 1951 of Miss M. Rolleston, librarian of the New South Wales Branch, for the purpose of gaining further experience which might be used to the advantage of the Association's libraries in Australia. The General Secretary explained that the proposal had emanated from Dr. Kempson Maddox, the President of the New South Wales Branch, who had spent some time in post-graduate study in America. Dr. Maddox had discussed the matter with the librarian of the Academy of Medicine in New York, and had been assured that every facility would be granted to Miss Rolleston. The New South Wales Branch Council thought that her visit should include Great Britain, and the view was expressed that on her return to Australia Miss Rolleston's experience would be valuable to the librarians of other Branches. The General Secretary pointed out that it would be to Miss Rolleston's advantage if she had the *imprimatur* of the Federal Council and was in fact regarded as its representative. The Federal Council decided to appoint Miss Rolleston the accredited representative of the British Medical Association in Australia for the purpose of visiting medical libraries abroad, and it also decided to make some contribution towards the expenses incurred in sending Miss Rolleston abroad.

Campaign against Tuberculosis.

In all its statements on a national health service, the Federal Council has stressed the importance of the tuberculosis problem. During the past two years an attempt has been made by the Commonwealth, in cooperation with the States, to provide better facilities for the care and treatment of the tuberculous and for lessening the financial worries of the breadwinner sufferers. Much, however, remains to be done. Indeed much can be done without the involvement of

a great deal in the way of new building, extra staff and equipment. The Federal Council, therefore, decided to recommend to the Commonwealth and States the adoption of the following measures in the campaign against tuberculosis:

1. Prevention.

(i) Case-finding. Locate every infectious case and by education or education and treatment render them non-infectious. First priority: All in-patients, and later, all out-patients of hospitals, and of pre-natal clinics. All working miners, and those in receipt of pensions for silicosis.

(ii) B.C.G. vaccination. First, on a voluntary basis, of all Mantoux negative reactors who are working and/or living at risk. To be extended to all children of school leaving age who, in addition, should have an X-ray photograph of their lungs before entering industry (employment or higher education).

2. Economical use of beds already in existence.

An immediate survey should be made of all sanatoria, hospital-sanatoria, mental hospitals, institutions for the aged and gaols.

Teams of consulting chest physicians and thoracic surgeons should, in consultation with the medical superintendents, conduct a survey of all hospital-sanatoria and sanatoria to decide the disposal of the patients and to make beds available:

(a) in country and public hospitals for those patients who are unsuitable for active or sanatorium treatment;

(b) in thoracic wings of general hospitals, and as an emergency measure, in sanatoria under the control of the Repatriation Commission when not required for treatment of ex-service patients.

As far as possible, beds should be used for remediable cases and for those who by active treatment can be rendered non-infectious or less infectious.

Country patients who cannot be benefited by active treatment should not be transferred to city or nearby sanatoria, but should be cared for in their own local hospitals.

City patients in the same category should be looked after in pavilion type wards, old folks' homes, etc.

3. Central chest clinics in every State.

Here will be kept the State registry of all notified cases and of their contacts.

Beds in sanatoria and institutions will be allocated in order of urgency; the right type of patient will be referred to the appropriate institution. "The right patient in the right bed."

Domiciliary treatment, after-care and follow-up, examination of contacts, investigation of home, employment and other conditions will be carried out by the staff of the chest clinic.

Statistical investigation of results.

4. Post-graduate training of nurses and medical officers, training of nursing assistants for tuberculosis institutions and rehabilitation are still under consideration.

Votes of Thanks.

A vote of thanks was passed to the President, Sir Victor Hurley, for presiding at the meeting.

The Federal Council also thanked the Victorian Branch Council for its hospitality and for the use of its offices, and Sir Victor Hurley, Dr. H. C. Colville and Dr. Charles Byrne for their hospitality.

Date and Place of the Next Meeting.

The date and place of the next meeting were left in the hands of the President.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on October 27, 1949, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, Dr. G. C. HALLIDAY, the President-Elect, in the chair.

The Psychoneurotic in Industry.

PROFESSOR W. S. DAWSON read a paper entitled "The Psychoneurotic in Industry" (see page 225).

DR. L. S. WALLMAN read a paper entitled "Psychoneurosis in Industry" (see page 228).

DR. BASIL WILLIAMS said that the two speakers had given a good résumé of the subject. One thing on which they had

been silent was the setting up of some concrete scheme whereby the people could be educated. They had set out the ideals and the causes of the maladjustment of various people in industry. Therefore some scheme was needed whereby people could be made happy members of the community. The solution was to take people in hand at the correct age, and there Professor Dawson could help. For people of fifteen to sixteen years, some form of universal military and educational training could be adopted as in England and New Zealand. If all the members of the community were called up on their fifteenth birthday, they could be brought under observation and kept for approximately a year (in France military training lasted for two or three years). That period could be a period of adjustment. All the members of that age group, male and female, would be brought together and sorted out according to their various potentialities, and any treatments required could be given to them. Thus all those young people, the future workers, would have a test made, their potentialities could be appreciated, and various ways and means could be devised to make them better citizens and better parents, to see that they were adjusted to their jobs, and to give them some outlet for their activities and recreation. The machine age had arrived and would stay; civilization could not exist without it. Therefore, if people did not find satisfaction in their employment, they had to find it somewhere else. Tragedies occurred among people who did not know how to find happiness and how to bring up a family. If they could be brought under supervision at the age of fifteen years, before they had taken the plunge into industry or into a profession, it would be possible to find what was wrong with them both physically and mentally, and by the application of psychiatry and psychology they could be helped to become decent citizens, prophylaxis being thus provided against psychoneurosis in industry. Of the population of 8,000,000 people, only a small percentage really enjoyed life fully; but that could be altered with training in citizenship, which would be the continuation for one year of the present compulsory free educational system. The people themselves would gain by it, and Australia would gain by it.

DR. D. R. MORGAN said that he had a question to ask Professor Dawson about a point on which he had touched very briefly—accident-proneness. Dr. Morgan believed that psychoneurotics—people who were tense or suffering from some emotional strain—were more prone to accidents than normal people. If that was so, could anything be done for such people, if they were known to be psychoneurotics? Dr. Morgan wondered whether it would be possible to change the personality of such people, or for industry to change their work, so that they were not such a liability, not only to themselves, but also to the people with whom they were working.

DR. N. E. B. KIRKWOOD said that both papers were full of facts on which there would be fairly general agreement. But Dr. Wallman seemed to have assumed something that he had not proved—that psychoneurosis was peculiar to modern civilization. Dr. Wallman had given many instances of the change that had taken place over eighty years. Dr. Kirkwood said that nearly fifty years earlier he had attended the birthday party of his grandfather, aged eighty years. A crowd of old men were present, who all talked about the things they had done, and he remembered even at that early age thinking them rather queer. They had had their ways of playing up—lying unconscious on the ground, for example; one or two of them were almost certainly a little neurotic. There had been, too, a good deal of neurosis in Biblical times, if one was to judge by the cures of which one read in the Bible. Dr. Kirkwood thought that neurosis was no more prevalent in the large cities than in the little bush towns; there was just as much neurosis among people of the outback as in King's Cross. One cause was the "glamorizing" of neurosis; it was an easy way out of the difficulties of life. The argument was, why not be neurotic? That was one of the things that made psychoneurosis the problem it was—the publicity given to it, and the "glamorizing" of it. In former times the neurotic person was regarded as a waster, a "dud"; at the present time he was regarded as a victim of civilization, to be pitied and given a pension, and if he did not want to go home to his wife, he could be accommodated in a club.

DR. W. S. GLEESON said that, as had already been pointed out, very little of a constructive nature had been put forward. Senator N. E. McKenna had referred to the establishment of experimental clinics. (They might also be regarded as experimental in the political sense.) Such centres might be of considerable use, especially in industrial areas. Many factors were at work in psychoneurotic disturbances, and it was impossible for one doctor to unravel them. It was only by going into the whole matter that one

could even approach any curative process. Clinics of that type might be useful; people need not be treated there, but referred on if necessary for study before the causes of their neurosis were investigated and if possible corrected. Dr. Gleeson felt strongly that the application of totalitarian methods would cause more difficulties and more frustrations.

DR. A. T. EDWARDS said that he was not well versed in industrial psychology, but that he had enjoyed the papers. In the United States of America they had found it not only wise but even profitable to appoint psychiatrists to the large firms, it having been estimated that the average output of a happy worker was 10% greater than that of an unhappy worker. Psychiatrists in large firms were functioning very well. However, in America they had the advantage, not known in Australia, that they could influence the placement of the patient and the firm's attitude to him. In Australia the psychiatrist had practically no contact with the patient's employer or foreman, except in places where there were welfare workers or in hospital social services departments. That was for the future. One danger that had not been foreseen was that of the increasing secondary gains to the psychoneurotic as a result of his neurosis—pensions *et cetera*. Every gain was a setback to his improvement. Unfortunately there was also a political gain in giving such people secondary gains; the danger was very hard to overcome. Dr. Edwards thought that many of the neuroses in industry were part and parcel of the prevailing national neurosis. Australia was suffering from an anxiety neurosis. Dick said that anxiety was due to the removal of the breast from the child. An effort was now being made to return the child to his mother's breast; the social services' fund was a means by which nine-tenths of the population hoped to return to their mother's breast.

Professor Dawson, in reply, said that, having always lived a very sheltered existence, he had been disconcerted, if not appalled, by Dr. Wallman's recital of the terrors of existence at the present time. Dr. Kirkwood had rather anticipated a comment he (Professor Dawson) would have liked to make about the question of neurosis. He would suggest that the psychoneurotic was a dependent person who looked for help from some source. In mediæval times the tendency was in the capacity of a retainer in large retinues of barons and squires or as a member of other agricultural communities. It seemed also that a not inconsiderable number of such dependent people went into monasteries, where again they were able to live dependent lives. At the present time that type of person for varying reasons was less able to depend on families and smaller groups; so he depended on society, and society made various sorts of provision for him. In reply to Dr. Williams, Professor Dawson said that the term "conscriptio" made him shudder. Clearly it was important to get hold of the adolescents, to socialize them and to give them a sense of social responsibility. After all, there existed schools and various organizations which could do that; surely it was better to leave those activities as free agencies, rather than to introduce any form of regimentation or forcible control or subjugation to the various existing methods of screening or education. Professor Dawson felt that the age of sixteen years was too late; the process should begin much earlier. Perhaps it had better start with the grandparents. In reply to Dr. Morgan, Professor Dawson said that accident proneness was a considerable problem; but he doubted whether its presence could be discovered in advance by any formal examination. At present they were still at the stage where foremen and others, perhaps the medical officer if he was part of the official establishment, could suspect certain individuals—particularly the mentally subnormal as well as the emotionally unstable—and precautions could be taken in introducing them to various types of work, particularly work where any hazard was involved; or perhaps they had better not be placed in any such situations. It was gratifying to hear the many comments made on the papers. Many of the present-day troubles were growing pains which continued to recur as modern civilization developed; they could only do their best in every possible direction; there was no one scheme to cover all the difficulties.

Dr. Wallman, in reply, agreed with Professor Dawson that the earlier the child or adolescent was brought under supervision, the better. Perhaps amongst the more specific concrete proposals for doing something about the problem, education was the prime factor; but the cooperation of the vocational guidance worker, the medical psychologist and the social worker was required in the process. It would be a long job, and might go on *ad infinitum*. Referring to the increased incidence of psychiatric diseases at the present time, Dr. Wallman said that perhaps it had been largely qualitative rather than quantitative. C. P. Donnison, in his book "Civilisation and Disease", compared the incidence of

psychosomatic disease and psychoneurosis between certain African tribes and the population of London; hardly any such diseases were detected in the African tribes, but they developed psychoneurotic disorders very shortly after exposure to civilization. Referring to compensation neurosis, Dr. Wallman said that there was no doubt that the incidence was very great. At medical boards, amongst members of the coal-mining industry—a dangerous occupation—50% of the symptoms in the cases considered had a psychiatric basis. To alleviate this situation, the first necessity was a preemployment examination to exclude psychopaths who would be predisposed to neurosis, and secondly the provision of a specialist service, especially orthopaedic and psychiatric, was required; rehabilitation should begin early, almost from the moment when a man was injured. Lastly, and it was an important point, reorganization of the compensation laws was required to ensure that there remained sufficient incentive to gainful employment.

Correspondence.

A MORE REALISTIC VIEW OF TUBERCULOSIS.

SIR: Tuberculosis is now in the spotlight. It seems certain that there will be a mass attack on the problem in the near future. It would appear that there is some reluctance by the various health authorities to make the assault. This reluctance to come to grips is not without good reason. A mass survey, which it is anticipated will reveal that as many as one in 250 of the population are suffering from active pulmonary tuberculosis, will cause such chaos and alarm that no good purpose will be served.

The problem is not only of accommodation, although that itself would be insoluble. There are mental and economic problems that would arise as soon as it was known which of the one in the 250 of the population were to be labelled with the stigma of being tuberculous. The mental problem is not only the attitude of the patient to his own disease (me, and my tubercle), but the mixture of fear and wonder with which the rest of the population, including the undiagnosed one in 250, have toward the known sufferer (him, and his disease). Many people, and not only lay people, seem to view the known tuberculosis sufferer with the same mixture of fear and wonder as they might a time-bomb—something to be watched carefully from a safe distance. Of course, "where ignorance is bliss . . .", and no doubt many of those who look askance at the patient from the sanatorium are themselves carrying their own time-bombs. A little thought should convince us that the traveller who surreptitiously spits into a sputum flask is a safer companion than the one who spits out the window, or even into his handkerchief.

The life of the tuberculous is like the policeman, not a happy one. Those of us who are revolted, and perhaps a little apprehensive, when we see "Even his best friends won't tell him" advertisements—his girl friend dodging dates, his boss cutting down staff or passing him over for promotion, his fellow workers shunning him; these and other refinements of cruelty are the lot of the "grubs". Landladies suddenly discover that they want the room for a daughter coming down "from the country", visitors and relatives miraculously contract down to a few stalwarts, once the cat is out of the bag. Wives sometimes leave their husbands, "because of the children" or because they fear for their own skins.

This is not a fairy tale; it actually happens. It might happen to us. It is happening to our patients today. Those of us who have had the opportunity of studying the "victims" of routine radiography must be struck by how quickly the patient develops lassitude, anxiety and loss of weight after the diagnosis is made.

It would be ridiculous to pretend that tuberculosis cannot be a lethal disease, but surely the mortality must be extremely low, when it is considered that as many as half the total population contact it at some time during their life. As Dr. Brailsford suggests (*British Medical Journal*, October 1, page 724), if we are going to have mass chest X rays and examinations, let us have them every year so that half the total population will have the benefit of sanatorium treatment. Our present approach is too inclined to treat the X ray and ignore the patient. We do not stop to consider seriously "How sick is this patient?"—for the evidence is on the screen.

This is what actually happened, and is still happening. An employee, who had given long and satisfactory service, was ordered an X ray in connexion with a scheme for

superannuation. The report showed a mottled shadow, that might be active. As a result his employment was suspended, he was told he had a "spot" on his lung. He was sent to hospital where a lengthy investigation was undertaken. His condition deteriorated; finally, after several months of "investigations", including numerous X rays, a positive sputum was found. He is one of the lucky (?) ones. He went to a sanatorium; he is still there eighteen years later. That man was doing a good job right up until the routine X ray. He has done nothing since—except make innumerable pairs of slippers. It is unlikely that he will ever do anything else.

A soldier is being discharged from the army. He is "full of beans", and playing a good game of football. A routine miniature film is taken; a 17" x 14" is ordered. He is sent in for investigation. He is put to bed for three months. He is X rayed repeatedly, his sputum is examined (when he can produce any), his stomach is aspirated. At the end of eighteen months he is discharged from the sanatorium; he feels almost as well as when he was first told he was sick. He is told not to attempt any work, to take things quietly and to report for a check-up every few weeks. He reports every few weeks as instructed; he feels very well. He wants to take a job; he is ordered another X ray. He is sick again. He is sent back to the sanatorium for another year.

This will be the fate of hundreds, perhaps thousands of others in a mass survey unless our approach to the problem is modified. X rays are like fire—a good servant, but a bad master; nor have we stopped to consider that 100% health is the exception rather than the rule.

We can learn a lot from a mass survey if we approach it willing to learn not only how many are ill with tuberculosis, but also, how many are well who have it? What happens to them? Do they lose more time off work than the average? What is their ultimate fate? Is it better or worse than those sent to the sanatorium who have the benefit of a sedate régime, and may have air injected into their chests and bellies? There are many questions here and no answers. It would seem to the writer than, unless we can answer these questions with reasonable certainty, we have no right to disrupt the lives of these patients and their families.

Yours, etc.,

B. SHORT.

"Anster",
Heath Street,
Mona Vale,
New South Wales.
January 20, 1950.

FURTHER REPORT ON DECAMETHONIUM IODIDE IN ANÆSTHESIA.

SIR: Since our article on decamethonium iodide appeared in this journal on November 26, 1949, we have used this drug in a further 90 cases. Extremely satisfactory results have been obtained. The following points are noteworthy.

In general the basic dose for adequate relaxation appears to be proportional to the body weight, a standard dose of 1.5 millilitres for a subject weighing ten stone being taken.

About fifteen children ranging down to the age of six years have so far been treated with the drug, the dosage being proportionately reduced from the adult standard. Thus a child weighing five stone is given 0.75 millilitre of the relaxant solution. The results in the series were excellent and indistinguishable from those obtained with adults.

In obese patients the amount of muscle tissue in proportion to the body weight is subnormal, and only about three-quarters of the calculated dose should be given.

One of our patients had a ruptured peptic ulcer and a most extreme degree of "boarding" of the abdominal wall. In this case a larger than normal dose of relaxant was necessary to procure adequate relaxation. The explanation of this would appear to be that, as a result of the excess of afferent stimuli from the irritable peritoneum, a larger than normal amount of acetylcholine was produced at the myoneural junction. Thus more relaxant was needed to counter this.

In view of a suggestion that decamethonium iodide appeared to cause a fall in blood pressure when used with ether, this proposition was investigated from two aspects. (i) Stable second plane anaesthesia was achieved with ether and decamethonium iodide was then given. No fall in blood pressure occurred. (ii) Relaxation with decamethonium iodide was obtained and maintained and then ether was added. With normal light plane ether anaesthesia no fall of blood pressure occurred. In excessively deep planes some fall occurred, but not more than would have been expected as a result of the ether itself. Thus it appears that, short of an amount producing complete diaphragmatic paralysis,

decamethonium iodide *per se* has no effect on the blood pressure when used with ether.

Our earlier impressions of greater ease of intubation than with curare preparations are confirmed. The cords literally wait almost completely separated to receive the tube, whereas with curare the cords frequently appear partially apposed in the mid-line. The reactions to the passage of the tube, such as "squeezing" and expiratory efforts of the thorax, seem much less or are non-existent with decamethonium iodide.

In conclusion, it may be mentioned that in all our recent short cases an oral airway with oxygen insufflation has been adequate to tide the patient over any slight respiratory depression, the use of a circle absorber having been found unessential.

Yours, etc.,
A. P. BALTHASAR.
C. A. SARA.

Sydney,
January 24, 1950.

PINK DISEASE OR INFANTILE ACRODYNIA: ITS NATURE, PREVENTION AND CURE.

SIR: The contribution to your journal (January 28, 1950) by Donald B. Cheek and C. Stanton Hicks, "Pink Disease or Infantile Acrodynia: Its Nature, Prevention and Cure", is one which should be acclaimed by our profession.

Without any intimate associations with infantile acrodynia, I do know that the many difficult, physically and mentally irritable children do respond to an increased supply of common salt in their diet. In all those cases from earliest infancy, where there has been no apparent cause for an upset, salt has always been freely prescribed. I even encourage mothers, when the child is of an age to handle a piece of common rock-salt, to place a large portion in their playground or on their high-chair at feeding times.

This observation was first made many years ago when a mother from far western New South Wales consulted me in relation to her dried up and difficult child (aged six years), who was directed here (Bondi) to avoid the heat of the summer; her chief complaint to me was that the child, on being taken to the beach, would insist on drinking the sea water. Increased common salt to his diet was suggested with the results then achieved. Increased common salt in their diets has relieved me of many difficulties in treating children. If necessary, in recent years, I have combined its use with "Eschatin" (Parke, Davis), there being no set dosage, each case taken on its response.

What has been said of children applies with equal force to many over-fatigued adults, fatigue expressing itself in many different physical and mental attitudes, so often a purely personal equation. I suggest the theory that the sodium ion causes an alteration in membrane permeability and concentration potentials; that the activating and controlling factor is hormonal.

Yours, etc.,
KENNETH ADDISON.

241 Oxford Street,
Bondi Junction,
New South Wales.
January 31, 1950.

Post-Graduate Work.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

Classes for M.D. II and M.R.A.C.P.

THE Melbourne Permanent Post-Graduate Committee advise that the three lectures in neurology arranged for March 16, 23 and 30, 1950, at the Alfred Hospital, will be given by Dr. Leonard B. Cox.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Course for Diploma in Psychological Medicine, Part I.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a course suitable for candidates for Part I of the diploma in psychological

medicine will begin in Sydney on March 20, 1950, for a period of eight months. Those wishing to enrol are requested to communicate with the Course Secretary, 131 Macquarie Street, Sydney. Telephones: BU 5238, BW 7483.

Lecture on Medical Statistics.

Dr. H. O. Lancaster, of the School of Public Health and Tropical Medicine, will address the Statistical Society of New South Wales on "The Interpretation of the Age Specific Death Rates in Australia with Special Reference to Cancer and Tuberculosis in the Period 1908-1945" on Thursday, March 23, 1950. The meeting will be held at 7.30 p.m. at the School of Public Health and Tropical Medicine, University Grounds, and Dr. A. H. Pollard, of the Mutual Life and Citizens' Assurance Company, and Professor E. Ford, Director of the School, will open the discussion. Visitors are welcome to attend.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 7, of February 2, 1950.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Neil McAlpine Baird, Patrick Raymond Joyce and Sean Desmond Brennan are appointed Surgeon Lieutenants (for short service), dated 5th September, 1949, 17th September, 1949, and 28th September, 1949, respectively.

Roland George Chambers is appointed Surgeon Lieutenant (for short service). Dated 1st August, 1949.

Promotions: To be Surgeon Captain.—Surgeon Commander Henry Woodall Gault.

Resignation.—The resignation of Trevor Alexander McLean of his appointment as Surgeon Lieutenant-Commander (Acting Surgeon Commander) is accepted, dated 28th October, 1949.

Emergency List.

Appointment.—Thomas Bowen Ready is appointed Surgeon Lieutenant, with seniority in rank, of 25th August, 1945, dated 11th March, 1949.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Promotion.—Surgeon Lieutenant John Alexander Le Page is promoted to the rank of Surgeon Lieutenant-Commander, dated 20th October, 1949.

Termination of Appointment.—The appointment of Robert Musgrave Green as Surgeon Lieutenant is terminated, dated 16th September, 1949. The appointment of Francis Callum Archibald as Surgeon Lieutenant is terminated, dated 21st August, 1949.

Royal Australian Naval Volunteer Reserve.

Appointments.—Colin Alfred Cameron Galbraith is appointed Surgeon Lieutenant, with seniority in rank, of 16th November, 1946, dated 19th October, 1949. John Francis Rutter is appointed Acting Surgeon Lieutenant-Commander, with seniority in rank, of 30th January, 1949, dated 26th October, 1949 (seniority as Surgeon Lieutenant, 7th October, 1944).

Promotion.—Surgeon Lieutenant Peter Ronald Brett is promoted to the rank of Surgeon Lieutenant-Commander, dated 5th October, 1949.

AUSTRALIAN MILITARY FORCES.

Royal Australian Army Medical Corps (Medical).

3/50053 Colonel J. G. Hayden, C.B.E., E.D., Royal Australian Army Medical Corps (Medical), is appointed Honorary Physician to His Excellency the Governor-General of Australia, *vice* Colonel (Honorary Brigadier) W. P. MacCallum,

D.S.O., M.C., Reserve of Officers (Royal Australian Army Medical Corps).

3/50055 Major (Temporary Colonel) R. Officer, Royal Australian Army Medical Corps (Medical), is appointed Honorary Surgeon to His Excellency the Governor-General of Australia, *vice* Colonel (Honorary Brigadier) J. Steigrad, C.B.E., V.D., Reserve of Officers (Royal Australian Army Medical Corps).—(Ex. Min. No. 3—Approved 24th January, 1950.)

The following officers relinquish the temporary rank of Major and are transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)): Captains (Temporary Majors) SX7000018 G. B. Fisk (4th Military District), 13th December, 1949, and VX7000077 T. H. Hurley (3rd Military District), 8th December, 1949.

VX700073 Captain R. R. Clark is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District), 9th December, 1949.

The following officers are appointed from the Reserve of Officers, and to be Captains: Honorary Captains VX700107 G. W. Cooper and VX700108 B. H. Gandevia, 1st December, 1949, and NX700199 E. J. Trenerry, 8th December, 1949.

To be Temporary Major, 3rd December, 1949.—SX700032 Captain D. D. Beard.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—The resignation of 1/39045 Captain (provisionally) B. Fitzgerald of his commission is accepted, 30th November, 1949.

Eastern Command: Second Military District.

Royal Australian Army Medical Corps (Medical).—2/50455 Major A. E. McGuinness, M.C., is appointed from the Reserve of Officers, 4th November, 1949.

Royal Australian Army Medical Corps (Medical): To be Captains (provisionally).—2/146561 Keith John Coventry, 15th December, 1949, and 2/146562 Farrell John Reynolds, 19th December, 1949.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—3/82030 Captain J. C. F. Minnis is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District), 4th September, 1949. The resignation of 3/101006 Captain (provisionally) J. J. McCarthy of his commission is accepted, 29th September, 1949.

Royal Australian Army Medical Corps (Medical).—The resignation of 3/101805 Captain (provisionally) J. P. Morris of his commission is accepted, 11th October, 1949. To be Captain (provisionally), 9th December, 1949: 3/101011 Charles William Edgar Wilson.

Southern Command: Sixth Military District.

Royal Australian Army Medical Corps (Medical).—6/15202 Major (Temporary Colonel) J. A. Gollan relinquishes the appointment of Deputy Director of Medical Services, Headquarters, 6th Military District, the temporary rank of Colonel and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (5th Military District), 1st November, 1949.

Western Command: Fifth Military District.

Royal Australian Army Medical Corps (Medical).—5/32249 Major A. A. Merritt is appointed from the Reserve of Officers, 7th October, 1949.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

The following officers are placed on the Retired List with permission to retain their ranks and wear the prescribed uniform:

2nd Military District.—Colonels J. C. Storey, O.B.E., V.D., K. S. Parker, M.C., E.D., and A. H. Tebbutt, D.S.O., V.D.

3rd Military District.—Colonels (Honorary Brigadiers) H. C. Disher, C.B.E., E.D., and N. H. Fairley, C.B.E., and Colonels A. P. Derham, C.B.E., M.C., E.D., and W. J. Newing, E.D.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 28, 1950.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory. ²	Australian Capital Territory.	Australia. ³
Ankylostomiasis	•	•	•	•	•	•	•	•	•
Anthrax	•	•	•	•	•	•	•	•	•
Beriberi	•	•	•	•	•	•	•	•	•
Bilharziasis	•	•	•	•	•	•	•	•	•
Cerebro-spinal Meningitis	5(1)	•	•	•	•	•	•	•	5
Cholera	•	•	•	•	•	•	•	•	•
Coastal Fever(a)	•	•	•	•	•	•	•	•	•
Dengue	•	•	•	•	•	•	•	•	•
Diarrhoea (Infantile)	•	•	13(12)	•	•	•	•	•	13
Diphtheria	11(4)	6(5)	1	•	1	•	•	•	19
Dysentery (Amoebic)	•	1(1)	•	•	•	•	•	•	1
Dysentery (Bacillary)	•	3(3)	11(8)	1(1)	3	•	•	•	18
Encephalitis Lethargica	•	•	•	•	•	•	•	•	•
Erysipelas	•	•	•	2	•	•	•	•	2
Filariasis	•	•	•	•	•	•	•	•	•
Helminthiasis	•	•	•	•	•	•	•	•	•
Hydatid	•	•	•	•	•	•	•	•	•
Influenza	•	•	•	•	•	•	•	•	•
Lead Poisoning	•	•	•	•	•	•	•	•	•
Leprosy	•	•	•	•	•	•	•	•	•
Malaria(b)	•	•	•	•	•	•	•	•	•
Measles	•	•	•	8(5)	•	•	•	•	8
Plague	•	•	•	•	•	•	•	•	•
Poliomyelitis	18(12)	11(3)	1	54(43)	1	1(1)	•	•	86
Psittacosis	•	•	•	•	•	•	•	•	•
Puerperal Fever	2(2)	•	1	•	1(1)	3	•	•	5
Rubella(c)	•	•	•	•	•	•	•	•	•
Scarlet Fever	13(6)	9(3)	5(1)	12(1)	4(3)	•	•	•	43
Smallpox	•	•	•	•	•	•	•	•	•
Tetanus	•	•	•	•	1	•	•	•	1
Trachoma	•	•	•	•	•	•	•	•	•
Tuberculosis(d)	16(14)	15(11)	17(14)	5(3)	6(4)	4(2)	•	•	63
Typhoid Fever(e)	1	•	•	•	•	•	•	•	1
Typhus (Endemic)(f)	•	•	•	•	•	•	•	•	•
Undulant Fever	•	•	•	•	•	•	•	•	•
Well's Disease(g)	•	•	•	•	•	•	•	•	•
Whooping Cough	•	•	•	16(3)	•	•	•	•	16
Yellow Fever	•	•	•	•	•	•	•	•	•

¹ The form of this table is taken from the *Official Year Book of the Commonwealth of Australia*, Number 37, 1946-1947. Figures in parentheses are those for the metropolitan area.

² Figures not available.

³ Figures incomplete owing to absence of returns from the Northern Territory.

* Not notifiable.

(a) Includes Mumps and Sarina fevers. (b) Mainly relapses among servicemen infected overseas. (c) Notifiable disease in Queensland in females aged over fourteen years. (d) Includes all forms. (e) Includes enteric fever, paratyphoid fevers and other Salmonella infections. (f) Includes scrub, murine and tick typhus. (g) Includes leptospirosis, Well's and para-Well's disease.

3rd Military District.—Captain (Honorary Major) W. S. Newton is placed upon the Retired List (3rd Military District) with permission to retain his rank and wear the prescribed uniform, 15th November, 1949. The following officers are retired, 15th November, 1949: Honorary Lieutenant-Colonel Sir Hugh B. Devine, Captains (Honorary Majors) P. G. Pratt and G. L. Lillies, Honorary Majors H. C. Colville, L. A. I. Maxwell, K. J. O'Day and R. Webster, and Honorary Captains E. L. A. McCardel, N. M. Simpson, H. H. Spencer, E. E. J. Spring and A. S. M. Tymms. To be Honorary Captain, 30th September, 1949: John Joseph McCarthy.

2nd Military District: To be Honorary Captain, 18th November, 1949.—Edwin John Trenerry.

3rd Military District: To be Honorary Captains.—Jack Phillip Morris, 12th October, 1949, Brian Fitzgerald, 1st December, 1949, and Mary Howson, 13th December, 1949.

Australian Medical Board Proceedings.

TASMANIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Officer, John Cairns Suetonius, M.B., B.S., 1949 (Univ. Melbourne), Launceston General Hospital, Launceston.

Adams, Audrey Belle, M.B., B.S., 1949 (Univ. Melbourne), Launceston General Hospital, Launceston.

Edis, John, M.R.C.S. (England), L.R.C.P. (London), 1929, M.R.C.O.G., 1938, Launceston General Hospital, Launceston.

Mason, John Herbert, M.B., B.S., 1948 (Univ. Sydney), Royal Hobart Hospital, Hobart.

Hopper, Alan William, M.B., B.S., 1947 (Univ. Melbourne), Royal Hobart Hospital, Hobart.

Obituary.

KENNETH FRANCIS O'DONNELL.

WE regret to announce the death of Dr. Kenneth Francis O'Donnell, which occurred on January 29, 1950, at Hamilton, Victoria.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Ford, Beryl Irene, provisional registration, 1949 (Univ. Sydney), Rachel Forster Hospital, Redfern.

Chaffey, Calder Harold, provisional registration, 1949 (Univ. Sydney), Ryde District Soldiers' Memorial Hospital, Eastwood.

Mallett, Keith Charles, M.B., B.S., 1947 (Univ. Sydney), 240 Old South Head Road, Bondi.

The undermentioned have applied for election as members of the Tasmanian Branch of the British Medical Association:

Wood, Ian Hedley, M.B., B.S., 1949 (Univ. Melbourne), General Hospital, Launceston.

Taranto, Robert, M.B., B.S., 1949 (Univ. Melbourne), General Hospital, Launceston.

Horton, John Affleck, M.B., B.S., 1949 (Univ. Melbourne), General Hospital, Launceston.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Bennett, Richard Barkly, M.B., B.S., 1949 (Univ. Adelaide), 19 Fullarton Road, Fullarton.

Doman, Frederick Spencer Howe, M.B., B.S., 1949 (Univ. Adelaide), Royal Adelaide Hospital, Adelaide.

Eldridge, David Melbourne, M.B., B.S., 1949 (Univ. Adelaide), 4 Netherby Avenue, Netherby.

Behrndt, Arthur Clive, M.B., B.S., 1948 (Univ. Adelaide), 227 Magill Road, Trinity Gardens.

Brock, Rex Richard Ashby, M.B., B.S., 1949 (Univ. Adelaide), 38 Queen Street, Norwood.

Casley Smith, Marjorie Phyllis, 1927 (Univ. Adelaide), 94 Cambridge Terrace, Malvern.

Schudmak, Henry, M.B., B.S., 1949 (Univ. Adelaide), 32 Portrush Road, Tusmore.

Game, David Aylward, M.B., B.S., 1949 (Univ. Adelaide), Flat 5, Ruthven Mansions, Pulteney Street, Adelaide.

Game, Patricia Jean, M.B., B.S., 1949 (Univ. Adelaide), Flat 5, Ruthven Mansions, Pulteney Street, Adelaide.

Diary for the Month.

FEB. 21.—New South Wales Branch, B.M.A.: Medical Politics Committee.

FEB. 22.—Victorian Branch, B.M.A.: Council Meeting.

FEB. 23.—South Australian Branch, B.M.A.: Clinical Meeting.

FEB. 24.—Queensland Branch, B.M.A.: Council Meeting.

FEB. 28.—New South Wales Branch, B.M.A.: Ethics Committee.

MAR. 1.—Western Australian Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135 Macquarie Street, Sydney): Ashfield and District United Friendly Societies' Dispensary; Balmmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

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